Hamilton Airport Gateway Opportunities Study

Final Report

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Prepared for:
The City of Hamilton and the
Ontario Ministry of Enterprise,
Opportunity and Innovation

PRICEWATERHOUSECOOPERS

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

- This study has been prepared for the City of Hamilton in partnership with the Ontario Ministry of Enterprise, Opportunity and Innovation to evaluate development opportunities in the vicinity of Hamilton International Airport (HIA).

- In recent years, the City of Hamilton has been redefining its role within the new economy. Based on the rapid development attracted by cargo airports in the United States, and the successes experienced by HIA to date, the City has identified HIA as its "Number One Priority" in its Economic Development Strategy.

- Although the land around HIA has yet to be serviced or developed, the extension of Highway 6 to the airport by 2004 and longer term transportation projects, such as the Mid Peninsula Corridor connecting the Niagara Region with Highway 403, and the Red Hill Creek Expressway will generate significant development interest in this area.

- The objective of the study include:
  - To investigate and recommend the types of companies and/or industrial sectors best suited to develop near to HIA;
  - To establish the market for the development of the airport and surrounding lands, including the types of activities, land requirements, infrastructure and facility needs of the identified companies and sectors;
  - To identify best practices from other successful planned airport developments; and
  - To provide the basis for a business plan to support future investment.

- The work program on which our conclusions are based comprised a mix of interviews with stakeholders, industry experts and case studies. This has enabled us to develop a vision as to what HIA and its surrounding lands might aspire, as well as, an action plan as to how that vision might be achieved.

- The airport itself is almost fully occupied. The study area includes approximately 5,800 acres surrounding HIA.

1.2 HIA is at the Hub of the Golden Horseshoe

- HIA occupies a strategic location within the Heart of the Golden Horseshoe – an urbanized region with a population of 7.4 million. With the opening of the Highway 6 extension, it will have direct access to the expressway network serving eastern North America.

- HIA complements Lester B. Pearson International Airport, through its 24-hour operational capability, reduced congestion and lower landing fees. This enhances the opportunities within the Golden Horseshoe to provide time sensitive air freight and reduced fare passenger services. This also helps Southern Ontario to compete with nearby facilities in the U.S. such as Buffalo International Airport.

- HIA's growth in both cargo and passenger volume has increased ten fold over the past decade. With major tenants, such as Purolator, UPS and FedEx, HIA is Canada's highest volume airport in terms of integrated courier shipments.

- With the timeliness demanded by the new economy, airports have become critical pieces of infrastructure. With its access to air, rail, port and highway facilities, Hamilton has the potential to develop into a major multi-modal hub.

1.3 Hamilton International Airport is Becoming a Vital Part of the Southern Ontario Economy

- One of the major attractors for firms locating in the Golden Horseshoe is the access to an established transportation network including highway, rail, port and airport facilities, all of which exist within close proximity to HIA.

- Golden Horseshoe municipalities have concluded that airport accessibility is one of the key corporate considerations for firms locating in their communities. Many regularly site HIA in their marketing campaigns to attract new business investment.

- HIA directly supports the economic sectors being targeted by Golden Horseshoe municipalities and further supports the sectors identified as key to the future economies of Ontario and Canada.

- In particular, the western portion of the Golden Horseshoe is expected to attract the highest share of growth in the Region over the next 20 years and will comprise about 45% of the population. By comparison, the Central Ontario communities east of the City of Toronto will account for only 11% of the population. HIA is consequently, well positioned to serve the Region's population base.

1.4 Airport Communities are Major Economic Engines in the United States

- A number of strategically located former military airports and green field sites in the United States have been transformed into major cargo hubs and have attracted unprecedented levels of industrial development.

- Airport communities comprising thousands of acres in areas such as Columbus, Ohio, Fort Worth Texas and North Carolina have materialized since the early 1990's from the rapid clustering of distribution, warehousing and manufacturing firms around new airports.

- The success of these airports is linked directly to features such as 24 hour, 7 day a week operations, the lack of congestion experienced by major passenger airports, direct taxiway access for businesses, the availability of Foreign Trade Zones and a central location to a regional or national market. HIA also enjoys all of these characteristics.

1.5 HIA Represents an Immediate Investment Opportunity

- The rapid growth around secondary US airports did not occur without significant up front planning and investment.

- They were generally created from master planned communities. Land consolidation, through public-private co-operation, was critical to crystallize the development vision, ensure that orderly development could occur and to minimize the location of non-compatible uses that may threaten the long-term operational advantages of the airports.

- Significant upfront investment in infrastructure was undertaken by State, Federal and local authorities. This included roads, utilities, and airport and other transportation facilities in an effort to ensure that land was available when needed. This enabled the jurisdictions to effectively compete for new business investments.

- State and local authorities also provided significant incentive packages to attract firms, such as couriers and major manufacturers that could be catalysts for further development. While incentives, such as property tax and sales tax relief are not available to Canadian municipalities, Canada enjoys locational cost advantages over the United States that may, to some extent, reduce the pressure for incentives. Hamilton has already attracted a good range of air cargo tenants that will help to draw additional business activities once servicing is in place and the Highway 6 extension is complete.

- New programs being developed by the Province, such as Opportunity Bonds and Tax Incentive Zones may allow communities, such as Hamilton, to compete more effectively with U.S. jurisdictions for strategic economic development opportunities.

1.6 HIA is a Magnet for Industries Strategic to Southern Ontario

- The businesses attracted to airport communities in the United States are consistent with many of the sectors currently being targeted by the City of Hamilton and other municipalities in Southern Ontario, as well as those being courted by the Provincial and Federal Government.

- Based on our review of these target sectors, the activities attracted around the US airports and our assessment of HIA, we have identified the following sectors as having the greatest potential for HIA:

- **Logistics**, including Airfreight Forwarders, and Couriers;
- **Aviation,** including maintenance repair and overhaul, aircraft parts manufacturing, and flight training;
- **Manufacturing,** including Automotive parts, advanced machinery, and plastics;
- **Information and Communications Technologies**, including hardware, software and consulting; and,
- **Biomedical,** including Biotechnologies, pharmaceuticals, and potentially, clinical laboratories.

1.7 Actions for HIA

- We have identified between 2,050 and 3,200 acres around HIA that would be of strategic importance in terms of attracting businesses to the area. These lands have been illustrated on Figure 1-1

Proposed Airport Related Land Allocation

Location	Approximate Acreage [1]
Airside Access	350 - 400
Gateway Site at Airport Entrance	100 – 200
Strategic Lands Near New Highway 6	1,000 – 2,000
Existing Business Park[2]	600
Total	**2,050 – 3,200**

1) Acreages are intended to represent gross acreages and should be viewed as approximate estimates only. More detailed land calculations should be undertaken taking into consideration finalized area limits, the existence of woodlots and other environmental features, the Highway 6 right-of-way, and the Mid Peninsula Corridor alignment.

2) Excludes lands with airside access which have been shown on the first line of the table.

- Based on a review of the U.S. experience and our knowledge of Canadian and local trends, we would expect typical industrial lot sizes to be in the 4-6 acre range. We would recommend that planning policies provide some flexibility to allow for much larger parcels that may be required by specialized users.
- Major transportation corridors, such as the new Highway 6, are desirable locations for new businesses not requiring airside access. However, the lands along the new Highway 6 corridor and other identified lands of strategic importance are still agricultural in nature and located outside the Urban Area Boundary. Expansion of the Urban Area Boundary is subject to an Official Plan amendment and prescribed policy requiring an evaluation of municipal-wide need,

agricultural, environmental and social impacts, and cost of servicing. For this reason, it is more expeditious and cost effective to upgrade and/or bring additional servicing to a portion of the existing Business Park as a first phase of development. The Industrial Business Park Review and pending Airport Area Servicing Strategy initiated by the City will address land requirements and feasibility of providing services.

- The City should spearhead the initial development of the airport lands through:
  - The creation of a development strategy for the study area;
  - Facilitating the land assembly process and, where essential, utilizing its powers of expropriation;
  - Providing local infrastructure as required;
  - Liasing with Provincial and Federal authorities on matters of provincial and national interest; and
  - Marketing the opportunities around the airport through the Economic Development Department.
- Once initial infrastructure is in place and development momentum has commenced, consideration should be given to the formation of an authority comprising representatives from the City, the Province, the Federal Government, TradePort, and private landowners with responsibility for:
  - Advising on strategic and land use planning issues;
  - Marketing the airport area;
  - Facilitating business location to and expansion within the airport area;
  - Acquiring lands strategic to the airport area to ensure compatibility of land uses with airport operations and/or to facilitate development by the private sector consistent with the airport area plan; and,
  - Developing or joint venturing with the private sector to develop strategic projects that may not be undertaken by the private sector on its own.
- The intent of the authority would not be to compete with the private development industry, but to assist private development and to undertake actions to ensure the implementation of the airport area plan.
- The primary role of TradePort will be to operate HIA, continue to plan and develop airport lands in co-ordination with the City and to ensure that the airport is able to operate in a manner that supports the airport area plan. It will be important for the airport to have early and regular input into the planning and development process. As a result, TradePort on behalf of HIA should be a commenting agency on development in the study area.
- The primary role of the Province will be to incorporate HIA into its business development initiatives as a key element of Southern Ontario's regional economic infrastructure; to facilitate Provincial highway construction within the airport area; and, to assist with appropriate funding through applicable programs to

ensure the availability and timeliness of infrastructure development.

- The primary role of the Federal Government will be to market HIA through its business development and export initiatives and to assist airport infrastructure funding through applicable programs.

Figure 1-1
Recommended Airport Areas of Strategic Importance

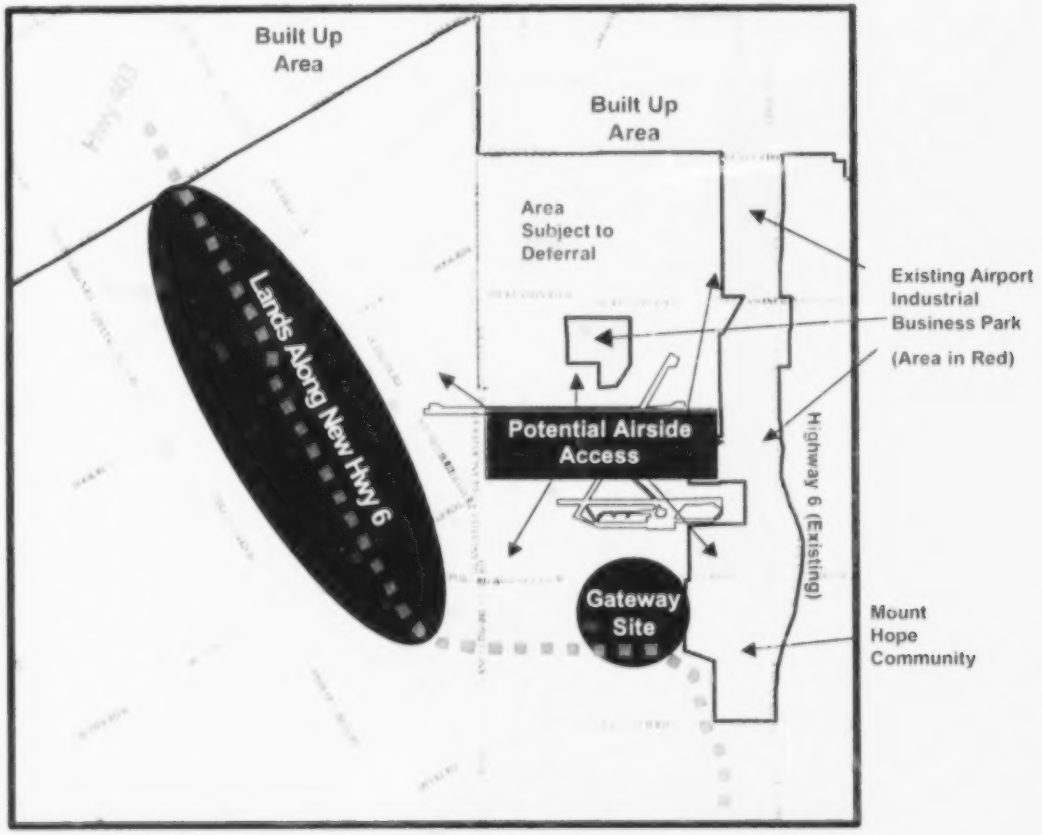
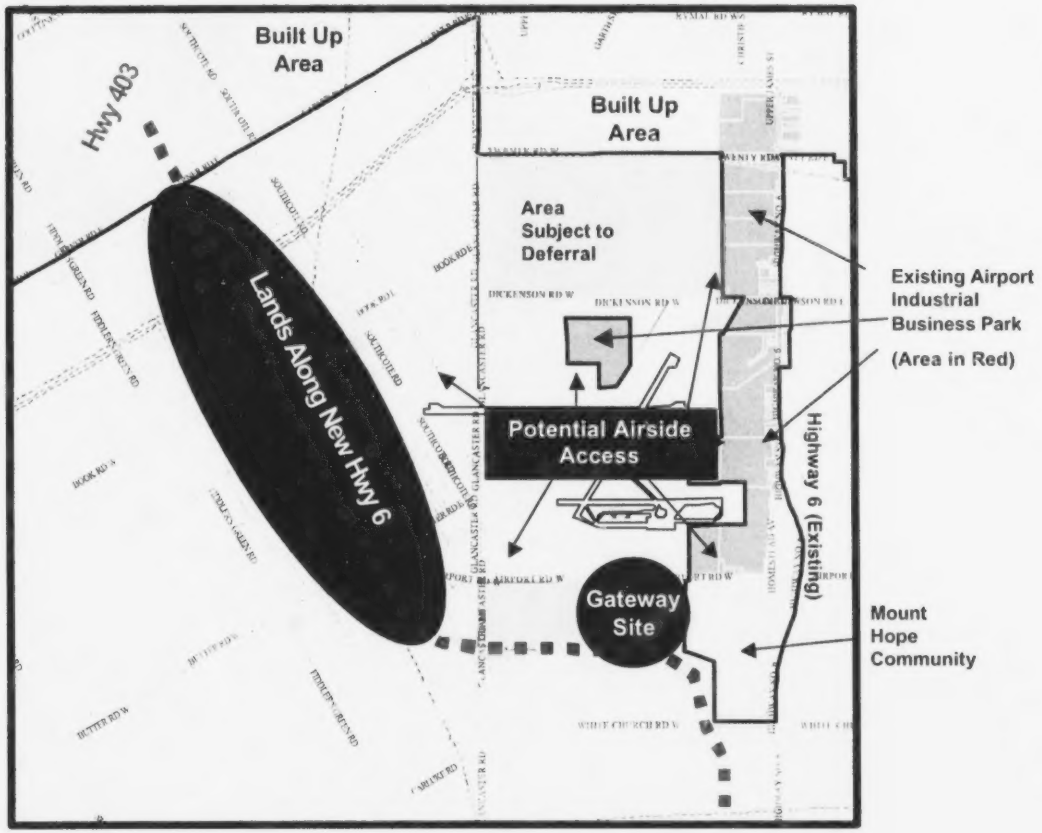


Figure 1-1
Recommended Airport Areas of Strategic Importance



2.0 INTRODUCTION

This study is dated August 15, 2002 and contains a detailed evaluation of the development opportunities around Hamilton International Airport (HIA) in Hamilton, Ontario. It has been commissioned by the City of Hamilton Economic Development Department in partnership with the Ontario Ministry of Enterprise, Opportunity and Innovation. The study was undertaken under the guidance of a Steering Committee comprised of representatives from:

- The City of Hamilton Economic Development Department;
- The Ontario Ministry of Enterprise, Opportunity and Innovation, Urban Economic Development Branch;
- The City of Hamilton Planning and Development Department;
- The City of Hamilton Transportation, Operations and Environment Department; and,
- TradePort International Corporation (The operators of HIA).

The study conclusions are based on extensive research into the prevailing business investment trends occurring in North America and specifically in Southern Ontario, the economic characteristics of the Hamilton Region, the operational strengths of HIA, and the experiences at successful cargo airports in the United States.

2.1 Study Background

The City of Hamilton is redefining its role within the context of its new municipal boundaries and the economy of the 21st Century. It is embarking upon a number of related studies and strategy initiatives to strengthen its role as a key economic and transportation centre for the Golden Horseshoe.

The international airport is a critical component of the emerging vision for the City and identified in Hamilton's Economic Development Strategy as the "number one priority". With the expansion of Highway 6 to the doorstep of the airport by 2004 and the planned Mid-Peninsula corridor, the attraction of the airport and surrounding lands will be enormously enhanced. Even without these key highway projects, the development of the airport itself has exceeded expectations. HIA is already the largest integrated courier airport in Canada and is rapidly developing its role serving niche passenger airlines. Considerable investment has already been made into the airport by the City, TradePort International, airport tenants, the Province and other private and public stakeholders. The lands surrounding the airport offer a significant opportunity to build on the success of HIA.

At this juncture, it is critical for the City to examine the market opportunities for the airport and surrounding lands for several reasons:

- **To ensure that the City makes best use of the opportunities presented by the airport before**

development pressures make long term planning more difficult;

- **To enable the City to plan for future infrastructure required to serve development around the airport;**

- **To be used as background for the concurrent Industrial Business Park Review study, which will evaluate the future need for and function of several employment land sites, including the Airport Industrial Business Park.**

Although, the study focuses primarily on the off-airport lands, the ultimate goal is to evaluate the City's vision for the airport district as Canada's premier specialty air cargo facility and fastest growing passenger gateway. In addition it will lay the groundwork for the implementation of that vision through the realization of complementary development opportunities. Imbedded in this goal are several objectives:

- To propose a development strategy that maximizes the investments of the various stakeholders;

- To establish the market for the development of the airport and surrounding lands, including types of activities, land requirements, infrastructure and facility needs of the companies and/or industrial sectors best suited to develop near HIA;

- To identify best practices that are appropriate for HIA from other successful planned airport developments; and,

- To provide the basis for a business plan to support infrastructure investments by the Province and other stakeholders.

2.2 Methodology

The Airport is an economic generator unlike any other that exists in Hamilton. The type of tenants attracted to the lands surrounding the airport will represent a mix from both the new economy and traditional industries, many locating in economic clusters that are only beginning to emerge in Southern Ontario and specifically in the Hamilton area. Our methodology is intended to capture changing industrial development dynamics and complement the Hamilton Industrial Business Park Review, which is being undertaken concurrently with this study.

The work program on which our conclusions are based comprises a mix of interviews with stakeholders, industry experts and case studies. This has enabled us to develop a vision as to what HIA and its surrounding lands might aspire, as well as, an action plan as to how that vision might be achieved. The specific research has included:

- **A dialogue with stakeholders** including, a workshop with TradePort Officials, interviews with existing airport tenants, interviews with local landowners and real estate brokers, interviews with

Hamilton Economic Development and Planning officials, and attendance at a public open house on the future of three of Hamilton's Business Parks, including the Airport Business Park.

- **Interviews with Provincial and Federal economic development agencies**, including Industry Canada, the Federal Department of Foreign Affairs & International Trade, the Ontario Ministry of Enterprise, Opportunity and Innovation and the Ontario Investment Service.

- **Interviews and review of economic development strategies of other municipalities influenced by HIA**, including: Niagara Region, Brantford, Burlington, and Waterloo Region.

- **Case studies of other major airport business communities**, including: Alliance, Texas; Rickenbacker International Airport, Ohio; and, Piedmont Triad Airport, North Carolina.

- **Interviews with major companies locating within other major airport business communities.**

- **Interviews with Industry Association Representatives.**

- **Review of Foreign Trade Zone activity in the United States and the Export Distribution Centre Program in Canada.**

2.3 Definition of Study Area

At the present time, the airport itself is almost fully occupied, so that the focus of the study is on the extent and type of development that might occur on the surrounding lands, which include the previously designated Airport Business Park, Special Policy Areas to the north and south of the Airport, as well as other lands of interest for potential development. In total, these lands comprise approximately 5,800 acres and have been shown geographically on Figure 3-6 in the following section. For the most part they are largely rural in character, designated for agricultural uses, and lack municipal services.

To the southwest of the Study Area are the Mount Hope Community and other rural lands north of Whitechurch Road. These lands were excluded from the Study Area, in part, because the focus of the Study was on the lands between the airport and the Urban Area and in part because of sensitivity to the Mount Hope community. The long term potential exists for an interchange between the New Highway 6 and Whitechurch Road. As such, there may be some merit in considering the lands south of Mount Hope for longer term airport development.

3.0 HIA – AT THE HUB OF THE GOLDEN HORSESHOE

3.1 HIA has Competitive Advantages that Position it as a Regional Economic Catalyst

Since its privatization in 1995, Hamilton International Airport has steadily grown its cargo handling and passenger volumes, while at the same time attracting major new tenants and significant new investments. It has become an important piece of the transportation infrastructure in Canada's largest economic economic region. Its success is attributed to its strategic location within Ontario's Golden Horseshoe stretching from Niagara through the Kitchener-Waterloo-Cambridge technology triangle, to the Greater Toronto Area. Its achievements are also inherently linked to trends in the technology, logistics, air cargo and passenger airline industries that vaulted a number of secondary airports into their status as regional economic magnets

Locational Advantages of HIA

As illustrated in Figure 3-1, HIA is located less than one hour from the majority of Canada's single largest manufacturing concentration. The Golden Horseshoe, as a whole, represents a market of some 7.4 million people, almost one-quarter of the Canadian population.

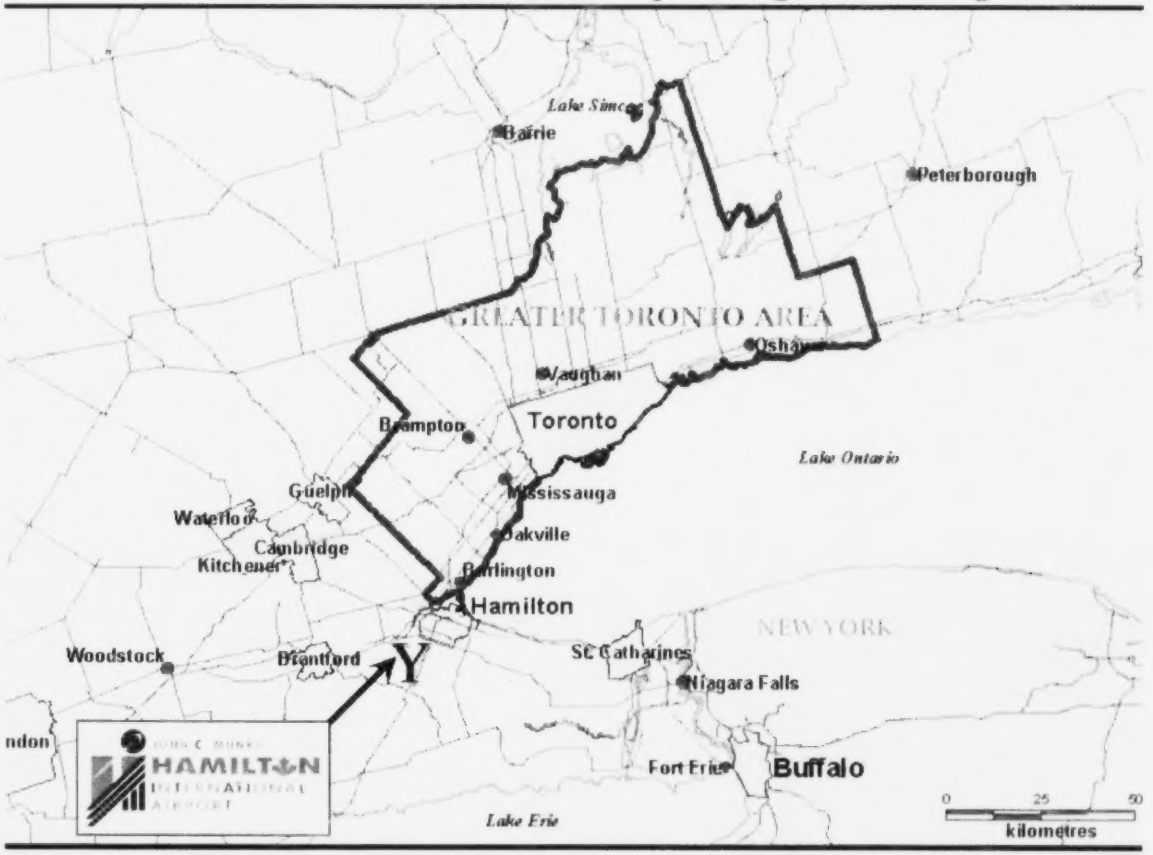
Its location within the Windsor-Quebec City Corridor and proximity to the US eastern seaboard has enabled HIA to grow into an important Canadian cargo hub serving a large portion of North America. Over $1.5 billion dollars a day in trade occurs between Canada and the U.S., with some 40% of Canada's Gross National Product moving by air cargo.

In terms of trucking capabilities, Hamilton is situated within a one-day drive of a North American market of approximately 150 million people.

Hamilton also benefits from its proximity to an excellent and expanding network of major highways and arterial roads providing relatively easy access to Ontario's 400 series highways and the US Interstate network.

It is important to recognize that the expansion of HIA has occurred despite a site that is relatively isolated from the regional highway network, located some 10 kilometres from Highway 403 and an equal distance from the Lincoln Alexander Parkway – the local expressway extending east-west through Hamilton.

Figure 3-1
Hamilton International Airport Regional Setting



However, its connectivity to the regional highway system will soon be seamless. Construction has commenced on the Highway 6 limited access roadway linking HIA directly to Highway 403. This project will provide HIA with expressway access to its entrance. The extension to the Airport is expected to be complete in 2004. The Red Hill Creek Expressway has been approved by the Province and will eventually provide excellent access between Lincoln Alexander Parkway and the Queen Elizabeth Way (QEW), enhancing links with the QEW and Highway 403 with the Airport.

Longer term plans call for the development of a Mid Peninsula expressway providing an alternate route through Niagara Region enhancing accessibility between the US and South Central Ontario. Although an ultimate alignment has not been established pending completion of the necessarily environmental assessment process, preliminary proposals indicate that the route could run adjacent to or south of Hamilton International Airport.

The possibility exists for the Highway 6 extension in front of the airport to be incorporated into the Mid-Peninsula corridor highway, which would further benefit HIA. The impact of this project may be reduced if the portion of Highway 6 from 403 to HIA becomes a toll highway as a result.

These highway improvements will not only enhance access for airline passengers and the desirability of the area for firms directly tied to airport activities, but will open up the airport vicinity to all companies relying on accessibility to the North American highway system.

Operational Advantages of HIA

Hamilton International Airport benefits from a unique set of operational parameters. As with many secondary airports in U.S. Metropolitan Areas, HIA compliments the region's major airport (Pearson) through lower costs, increased operational flexibility. As the closest Canadian International airport to the western GTA, the Niagara Region and South Central Ontario, HIA is also well positioned to compete with Buffalo International Airport for the discount travel market from Southern Ontario. Specifically, HIA offers:

- Year-round 24-hour/7-day operations (no curfew);
- 24-hour Canada Customs;
- Far less air congestion and fewer ground delays compared to other major airports;
- Operational flexibility on the aprons enabling trucks to load and unload directly onto the aircraft;
- Lower land and labour costs than larger urban centres;
- No peak period charges;
- Lower landing fees than major airports;
- No landing restrictions;

- Abundant lands for development in proximity to the airport; and,
- Relatively minimal population to be affected by aircraft noise.

The ability to offer 24 hour/7 day service is the single most important factor influencing the location of the major courier companies at HIA. HIA is critical to the overnight delivery service for a number of the courier companies, several of which indicated that without the round the clock service, they would not exist at HIA.

Lower landing fees benefit discount and charter airlines, enabling them to achieve cost competitiveness. Furthermore, Hamilton has been able to attract passenger airlines that may not necessarily be accommodated at Pearson due to capacity and competitive factors.

Unlike Pearson, HIA also offers substantial development potential around the airport. The Study Area includes some 5,800 acres of largely rural lands surrounding the HIA with potential for airport related development. This provides an opportunity to piggyback on to the success of the airport, while at the same time planning for future development that is compatible with the operations of a major airport.

3.2 HIA is Growing into a Major Cargo Hub

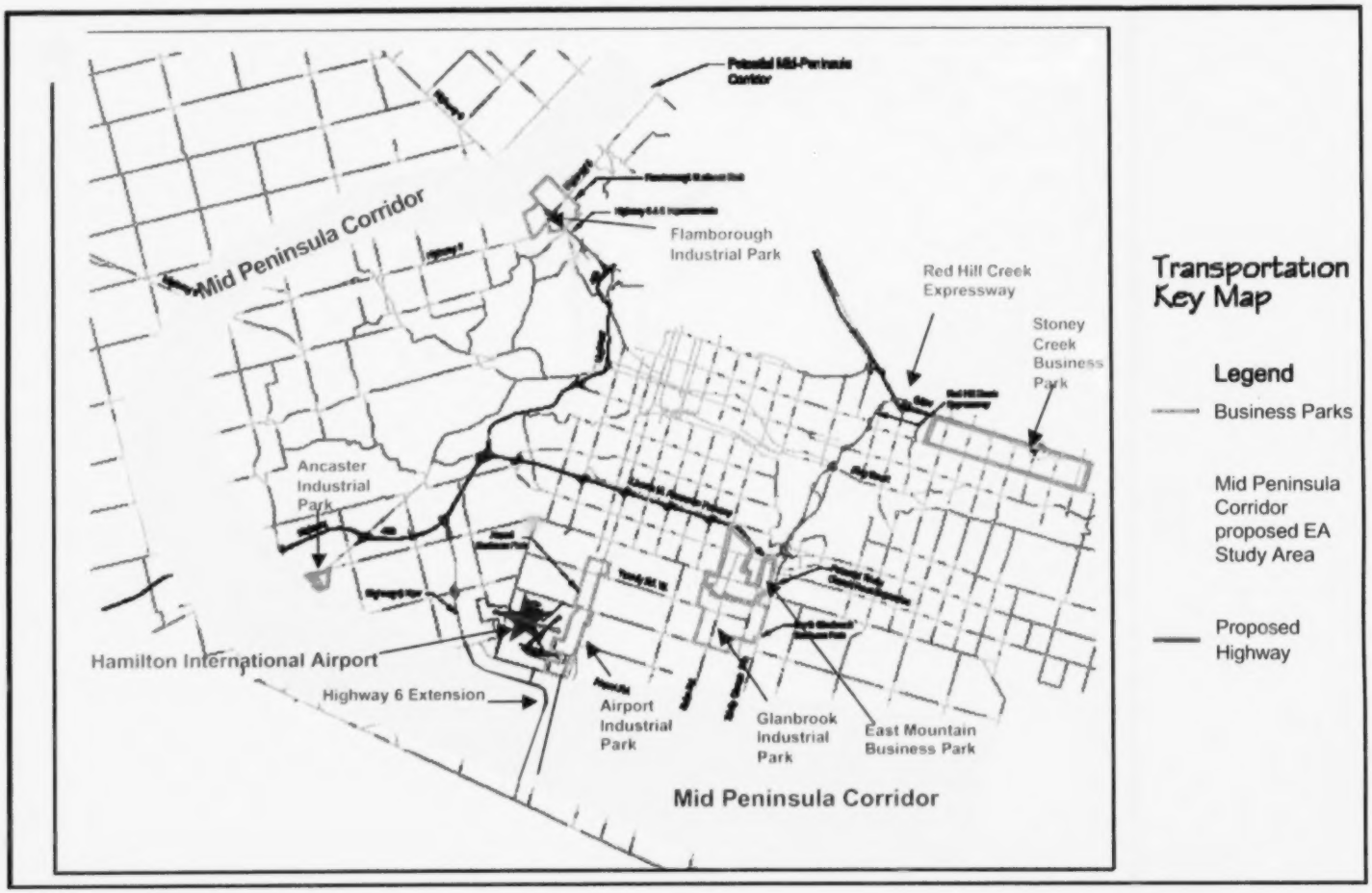
HIA is Canada's highest volume airport in terms of integrated courier air shipments. Facilities for four of the largest overnight package delivery companies that operate in Canada are located at the airport. These include Purolator Courier, United Parcel Service, FedEx, and CargoJet.

In total, 23 air cargo and courier companies operate out of HIA, including many of the largest in North America, as listed below.

Active Aero Charter Inc.	Grand Aire Express
Aero Freight	Kitty Hawk Airways
Air Cargo Express	Knighthawk Air Express
Amerijet International	Mid-Atlantic
Ameristar Jet Charter	Murray Aviation
Aviation International	North American Charters
Cargo Jet	Northern Air Cargo, Inc.
Castle Aviation	Provincial Airways
Clinton	Purolator Courier
Federal Expess (FedEx)	Reliant Airlines
First Air/AirNWT	UPS
	USA Jet

In addition to the air cargo companies, seven ground transportation firms are also established at HIA.

Figure 3-2
Hamilton International Airport - Regional Transportation Infrastructure



In 2002, HIA is estimated to handle some 88,000 metric tons of inbound and outbound cargo and integrated courier shipments. This represents a more than a ten fold increase over the past ten years. Tremendous growth in air cargo including courier shipments, witnessed at HIA in the 1990s continued until the year 2000. The growth experienced in the late 1990's is attributable in large part to the major facilities opened on site by Purolator and UPS. HIA experienced a decline in air cargo traffic in 2001 similar to that witnessed in the overall industry. Tonnage in 2002 is estimated at 6.0% above 2001 levels. Other than Pearson International Airport, HIA is the dominant cargo airport in the local region. Buffalo International Airport handled some 42,000 metric tons in 2001, less than half of the volume of HIA. Niagara and London handle very small cargo volumes, which are not tracked.

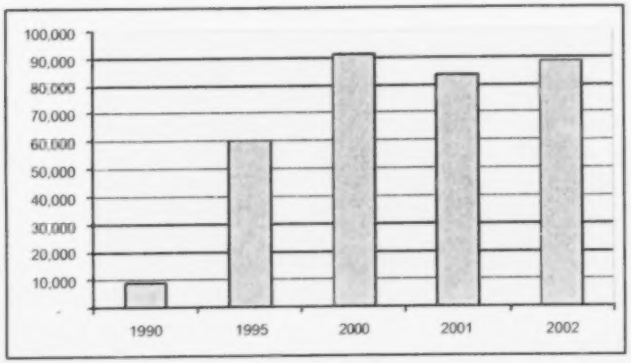
It is also worth noting that the implications for economic development may be greater with respect to integrated courier hubs, such as HIA than for pure air cargo facilities. This is because of the significant difference in the timeliness of shipments. Air courier shipments are generally lighter weight (under 200 pounds) with delivery times of under 24 hours. By comparison, air cargo shipments generally have delivery times of several days. As a result, companies that generally rely on pure air cargo shipments do not gain a significant relative time advantage by locating in proximity to an airport. A location near to an airport for an air courier shipper, however, can make a significant difference on its ability to meet same-day orders or meet overnight or delivery cut-offs. As a result, the existence of the major integrated couriers at HIA, represent a substantial business attraction.

Growth in air cargo at HIA has achieved "critical mass", whereby the airport can now provide necessary services to major carriers at competitive prices. With the requisite facilities now in place and the availability of 24-hour service, HIA has positioned itself for continued growth in air cargo. Figure 3-3 demonstrates the high growth levels of cargo in the 1990s.

Despite its lead in integrated courier shipments, HIA still ranks behind Pearson in terms of total cargo volume. Inbound/outbound cargo processed at Pearson Airport has been estimated at approximately 323,000 tonnes for 2001 compared to 83,000 at HIA during the same year. As development occurs on the lands surrounding HIA, however, total cargo volumes are expected to increase. In 2002, the volume handled by HIA has been estimated at 89,000 tonnes based on partial year data, representing an increase of 6%.

Medium-sized, non-hub airports may have operational advantages for cargo/courier shipments over larger airports since they often have land available to build hub operations, sort transfer operations or logistics centres. Also, medium-size airports do not have neighbouring facilities or operational constraints that can impede shipping and logistics at larger airports.

Figure 3-3
Hamilton International Airport
Historic Cargo Volumes (Metric Tons)



Note: Includes integrated courier shipments. 2002 estimate based on January to July partial year data.

International expansion for air cargo is anticipated with the completion of the runway extension to 10,000 feet in 2001. This project now enables the airport to receive almost all aircraft currently operational today, facilitating non-stop passenger and cargo service to Europe, Asia and South America.

In order to achieve this growth, however, investments must be made in airport related infrastructure, including additional taxiways and aprons and municipal servicing to airside properties and other surrounding lands.

Hamilton's Multimodal Capability

Hamilton represents a truly multimodal port given its interconnected airport facilities, highway and rail networks, and its port location on Lake Ontario.

Hamilton is served by Canada's two largest rail lines, Canadian National (CN) and Canadian Pacific (CP), through which it is well connected to the North American rail network. The principal CN line in the Hamilton Area extends along the northern portion of the City adjacent to the port lands. Switching for CN is contracted out to the Southern Ontario Railway – a subsidiary of Rail America. The CP line extends east-west through the central portion of the City with a rail yard approximately 6 kilometres north of HIA adjacent to Highway 403.

The Port of Hamilton is the busiest Canadian port in the Great Lakes system and handles approximately 13 million metric tonnes annually. The Port has good connections to both the Canadian National and Canadian Pacific lines.

Plans exist to bolster regional movement in the area through the development of the:

- Red Hill Creek Extension (linking QEW to the Lincoln M. Alexander Parkway); and,
- Mid Peninsula Corridor - a four lane (potentially toll) controlled access roadway that will link Fort Erie to Highway 407, along the top of the escarpment.

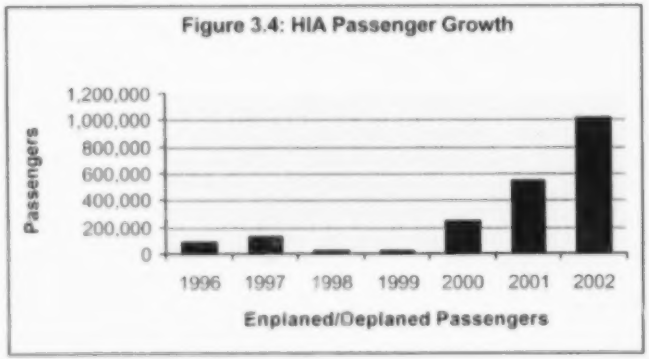
Although the vast majority of shipping at the Port is related to the steel industry, long term potential may exist for more diversified port activities to take advantage of its multi-modal facilities, including its access to the airport.

Furthermore, a joint Canadian, US initiative is underway to study the potential to upgrade the St. Lawrence Seaway for larger vessels. Hamilton could be a major beneficiary if this initiative were to proceed.

Kitty Hawk, Zantop, USA Jet and Evergreen International represent HIA's growing contingent of dedicated freighter service firms. These companies use HIA as the Canadian entry point to access domestic manufacturers and distributors.

3.3 HIA is becoming an Important Passenger Terminal

Passenger traffic at the Hamilton International Airport has grown exponentially since 1999. Forecasts for the current year indicate passenger levels will exceed one million in 2002, making HIA one of the top ten passenger airports in Canada.



Note: Data for 2002 has been estimated by PwC based on January to June partial year data.

As a result of this growth, TradePort has announced plans for a four-phased passenger terminal expansion, scheduled for completion in 2006. Upon completion, the airport will contain 15 gates and have capacity to handle 5 million passengers annually. The airport's vision is to develop into Canada's fifth largest passenger gateway airport, while maintaining its position as Canada's top ranked specialty cargo airport.

By comparison, Pearson Airport handled 28.0 million passengers in 2001 and Ottawa International Airport totalled 3.4 million passengers during the same period. Within the Niagara/South Western Ontario market, Hamilton ranks only behind Buffalo International Airport in passenger volume which served some 4.4 million visitors in 2001. Niagara Falls and London airports handled some 20,000 and 340,000 passengers respectively in 2001.

3.4 HIA's Growth has Exceeded Expectations

HIA has enjoyed tremendous success since its privatisation, recording unprecedented levels for passenger service and cargo shipments. It has also attracted substantial investment by both the private and government sectors.

Since 1995, almost $80 million has been invested on the airport site itself and another $33 million has been committed by the Provincial Government for the extension of Highway 6 to provide direct expressway access to the airport. This investment exceeds the total value of industrial construction in any single year in the City of

Hamilton and in many years exceeds the total value of industrial and commercial construction combined.

TradePort has invested over $15 million in 2002 and over $25 million since taking over operations to upgrade the Airport's infrastructure.

HIA has developed into a premier intermodal courier and cargo hub, with a goal of becoming the cargo/courier capital of Canada.

Two of the key recent initiatives at the HIA are the $18 million warehouse/sorting centre for UPS and the recently completed $6 million 90,000 square foot Purolator Courier Air Hub and Sort facility, which is Canada's largest courier air hub. HIA has also benefited from the recent construction of a 37,000 square foot hangar by Kelowna Flightcraft Ltd.

Hamilton is considered one of UPS' "gateway airports" and its technology intensive cargo handling facility and aircraft parking apron is the company's largest Canadian installation. Canada's market leader and largest fully integrated courier company - Mayne Logistics Loomis also operates at Hamilton Airport.

FedEx also indicated that they project a doubling in their volume of shipments at HIA over the next five years, which would require a facility twice the size of the one currently existing at the airport.

Scheduled to commence in October 2002, WestJet plans to build a 60,000 square foot hangar and apron facility. This is a $9 million investment to facilitate their recently initiated service to Eastern and Western Canada.

It is anticipated that other airlines may operate discount carrier service at HIA as a competitive response to WestJet, and that complementary service will be introduced from HIA into a major US hub.

Orlick Industries has completed a purchase of two strategic parcels, including a 53-acre site on Highway 6 immediately east of the airport in the business park and a 75-acre parcel further south at Homestead Drive and Airport Road. Orlick intends to build a 200,000 square foot auto parts manufacturing facility at the business park location, with a longer term vision of attracting distribution and airport related uses on the excess lands.

Cargo Jet proposes to build a 50,000 square foot multi-cargo tenant facility in the spring of 2003.

In summary, the airport has experienced an unprecedented development boom. With the opening of Highway 6, the focus will be on the surrounding lands.

3.5 Cargo Airports are Essential to the Needs of the New Economy

Today's highly competitive global market has created an unprecedented requirement that goods be delivered with speed and dexterity. Airport proximity is an essential component of this requirement. Trends such as e-

commerce, supply-chain management, just-in-time delivery, and consumers' increasing preference for made-to-order products have all created a demand for guaranteed, time sensitive delivery. Although cost and quality are still necessary, success requires that products are rapidly developed, marketed and delivered to the consumer.

The burst of the dot-com bubble has reduced previous growth forecasts for e-commerce. However, this innovation has changed the way goods are moved between suppliers and customers. Business-to-business and business-to-consumer transactions over the Internet have a significant influence on transportation. Flexibility and speed of transactions using e-commerce removes large amounts of time from the production and distribution process. The required speed of meeting customer orders places a huge burden on logistics of distribution.

One outcome of e-commerce transactions is that shipments from manufacturers have become smaller, and more frequent enabling goods to be moved more quickly than their larger counterparts. As a result, cycle times will continue to decrease and manufacturing profit margins will subsequently increase, enabling more investment into delivery. Companies dependent on transportation of goods can significantly reduce turnaround time on orders by locating near a major integrator hub such as FedEx, or UPS. Faster processing can occur by receiving parts via the integrator facility and then assembling and shipping the products through the integrator. Many computer manufacturers take advantage of this process with FedEx including Dell, Apple Computer and HP Compaq.

Another factor driving the cargo boom is the increasing reliance on air cargo by Fortune 500 firms. A shift is occurring with these firms that no longer want to carry large inventories. They are now carrying short inventories and relying on the assurance of delivery times from carriers. Fort Worth Alliance Airport and its surrounding lands contain 33 Fortune 500 firms who are capitalising on these trends.

A review of major U.S. cargo airports indicated that airport locations, including their surrounding industrial lands have experienced significant industrial construction activity. Recent market reports indicate that lands located in close proximity to airports are attracting among the highest average lease rates in the surrounding market. There are a number of reasons for the growing importance of airport proximity in the industrial and office markets. The airport real estate market has drivers similar to the air cargo market:

- Globalisation of commerce,
- Growth of knowledge economy,
- Sophistication of supply chain management, and
- Consumer e-commerce-related demand.

Globalisation of commerce increases the prominence of trade bloc and global linkages. Companies can expand their sourcing of components and sub-assemblies in developing countries to reduce production costs. Savings

on production can then be applied to express transport goods to assembly locations in North America. The globalisation of production combined with just-in-time inventory management strategies will create vast opportunity for firms involved in shipping and logistics.

Supply chain management systems optimise the relationship among facility and inventory costs and just-in-time or enterprise resource planning systems. Increasingly, optimised systems have high value ratio products stored centrally and shipped via air cargo.

"Knowledge economy" items include high tech, electronics, medical, biological, and professional, legal and financial products. These generally have a higher value to weight ratio making them ideal for air shipment. As mentioned previously, consumer-driven growth of e-commerce has increased demand for faster shipping. Firms requiring faster turnaround times on customer orders pay premium rents to be near airport distribution facilities.

This increased pressure to reduce sourcing, production and delivery times requires that firms strategically locate and consolidate their operations – from acquiring the raw materials to delivering the finished goods. This new reality has pushed airports to the forefront.

3.6 The Lands Surrounding HIA Represent a Major Economic Development Resource

Interest in the lands surrounding HIA is developing on a number of fronts.

TradePort's Master Plan

Since HIA was privatized in 1996, the owners have been guided by a 3,500-acre Master Development Plan for the airport and its surrounding lands. As indicated on Figure 3-5, the major land use components include a significant acreage reserved for firms requiring direct airside access, perimeter lands for other airport related activities, as well as longer term lands reserved for future development of terminal facilities and additional commercial/industrial activities.

The primary focus of the master plan, apart from direct airport activities is to attract transportation and logistics firms, distribution centres, warehousing and other firms requiring superior air and highway service

As has been the experience at US cargo airports, the attraction of these activities is expected to attract other industry clusters, such as pharmaceutical distributors, computer assembly firms, electronic component manufacturers, e-commerce companies and optical suppliers among others. Individual firms within these clusters may, but not necessarily, have a relationship with the transportation and logistics activities.

TradePort's long-term vision is for an extensive airport city or "aerotropolis" extending well beyond the local area comprising a wide range of commercial activities, industry clusters, tourism and hospitality services, and other uses with a central focus around the airport as a transportation hub.

The City of Hamilton Planning Initiatives

The Study Area comprises just under 6,000 acres surrounding the airport (see figure 3-7). Some is part of the previously designated Airport Industrial-Business Park, a small part comprises special policy areas, while the bulk is still designated agricultural with no status for airport or industrial development.

The following describe the major components currently under consideration by the City for future airport related development, which are depicted in the accompanying map.

Lands existing within the Airport Industrial-Business Park extend from the hydro corridor to Airport Road West generally on the west side of the existing Highway 6. These lands comprise approximately 700 acres and are designated under four categories in the Airport Industrial-Business Park Secondary Plan: Airport-Related Prestige Industrial, Airport Related Commercial, Airport-Related Business, and Airport-Related General Industrial. The first three categories generally have frontage along Highway 6, while general industrial lands have been allocated for interior parcels, including most of the lands directly abutting the airport.

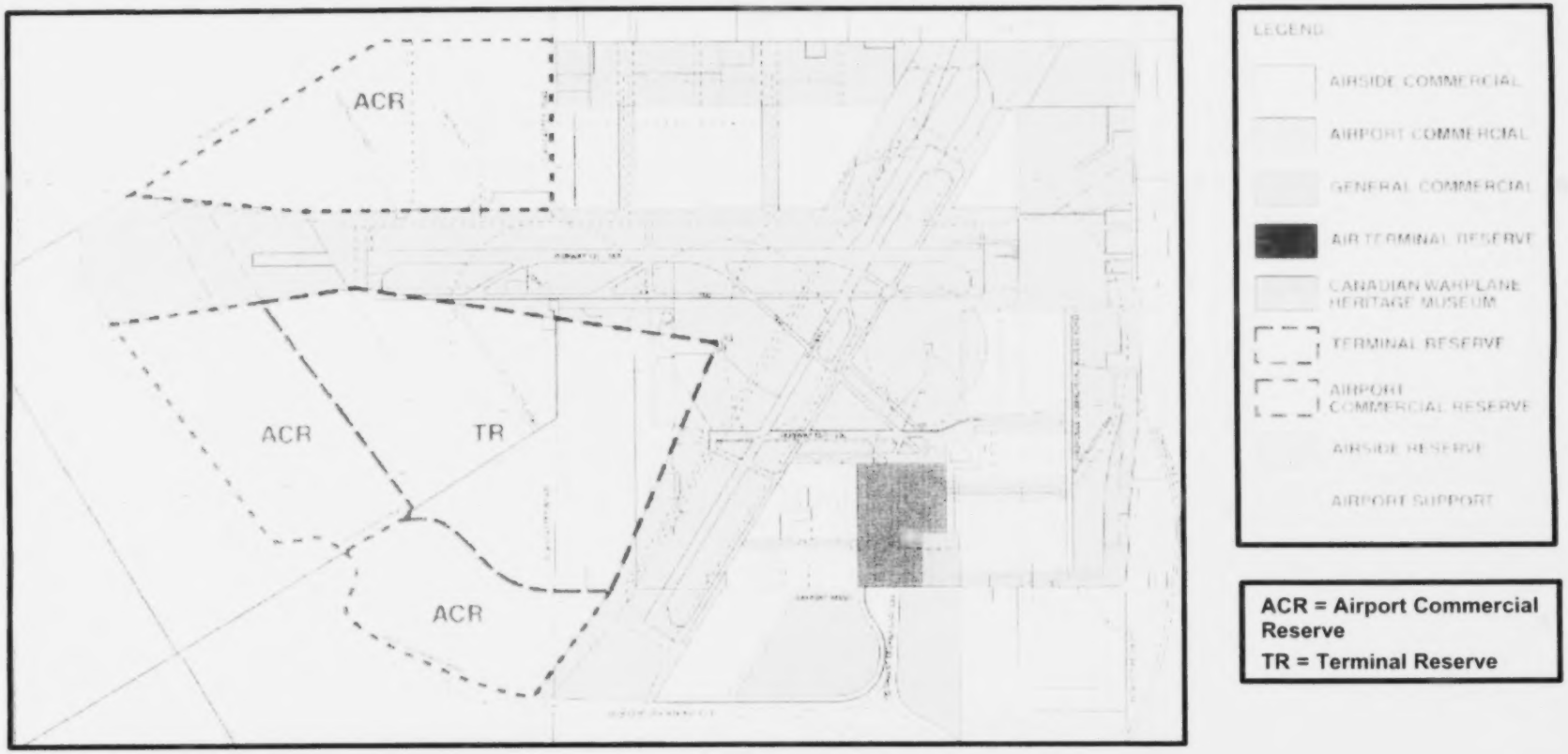
In addition to the Business Park land there is an 80-acre L-shaped parcel that abuts the airport to the north. It was designated as "Business Park" for a proposed industrial use that has never materialized.

The vast majority of these lands are currently used for agricultural, residential, outdoor recreation activities or are vacant. Some of the lands have partial municipal services. At present, the only proposed industrial use is a 53-acre parcel acquired by Orlick Industries for an automotive parts facility and airport related uses.

Lands to the north of the airport, south of Dickenson Road are designated Special Policy Area 1 (SP1). These lands, which comprise approximately 258 acres, are intended for future airport industrial uses, pending municipal servicing and a demonstrated need for airport related uses.

Lands to the south of the airport, comprising some 323 acres are designated as Special Policy Area 2 (referred). As with SPA1, these lands are proposed for airport related activities, but are pending the resolution of Referral No. 1 to the 1995 Regional Official Plan. Designation and rezoning would then be dependent on municipal servicing and the completion of the Highway 6 extension from Highway 403 to Whitechurch Road, just south of the airport. Orlick Industries has acquired a 75-acre parcel in this area for future airport industrial uses.

Figure 3-5
Hamilton International Airport Master Plan



Both special policy areas are presently occupied by residential and agricultural activities.

To the north of SPA1, north of Dickenson Road is an area that has been deferred as part of the 1995 Regional Official Plan comprising some 790 acres. The deferral relates to requests submitted during the preparation of the Official Plan to bring the land into the Urban Area Boundary for either Urban (e.g. residential) or Business Park land uses. A subsequent deferral request was submitted to the Ministry of Municipal Affairs and Housing, and no decision on the matter has been made since. Consequently, the lands are still designated Rural and are outside of the urban boundary, as are other lands in the study area to the west. Resolution of the deferral status should be careful not to affect future operations at the airport or airport related development opportunities

To the west of the airport are 4,400 acres (3,700 acres net of woodlots) that is an area of interest to the City but has no planning status related to the airport. These lands are also significant in that they also include the future Highway 6 expansion and potentially the proposed Mid-Peninsula Corridor, which may offer potential for higher-order commercial and industrial uses. A portion of these lands (approximately 1,000 acres) have been identified in TradePort's Master plan as Airport Commercial Reserve and Airport Terminal Reserve (i.e. for longer term airport related activities). These lands are still predominantly under private ownership, rural in character, and designated Rural in the Regional Official Plan.

The following table summarizes these potential airport development related lands:

Figure 3-6
Potential Airport Development Lands

Land Category	Approximate Size (Acres)
Designated Business Industrial Park [1]	700
L-Shaped Industrial Site[1]	80
Special Policy Area 1	258
Special Policy Area 2	323
Deferred from 1995 Official Plan	790
Area of Interest (No Status)	3,700
Total	**5,851**

1) Area designated as Business Park in the Study Area

Private Land Speculation

With the pending completion of Highway 6, the extensive investment made in the airport, the prospect of municipal servicing, and the lack of green field industrial lands in Hamilton, land speculation is already occurring. This is taking the form of acquisitions by investors and historic rural landowners holding out for inflated land prices.

As we understand from discussions with landowners and real estate brokers, interest exists for both industrial-commercial and residential development.

There are two aspects to land speculation that must be considered. On the one hand, land speculation is a strong

sign of demand in the vicinity of the airport. One landowner referred to the airport as one of the City's "Crown Jewels", and an economic engine for Hamilton's future. There is little doubt that the development of the lands around the airport has gone well beyond the visionary and long-range planning stages and is fast approaching realization.

Land speculation, however, also represents a threat to planned growth. First, by driving up land prices, it becomes more difficult for the City to attract new businesses to the area, particularly those that require extensive amounts of land and may have cost constraints. The ability to offer inexpensive serviced industrial land is a significant economic development tool. To the extent that Hamilton will be competing with US jurisdictions with the ability to provide property tax holidays, below market value municipally owned lands, and other incentives, local land speculation will reduce the competitiveness of the airport lands.

Finally, as land values and expectations increase, there is likely to be increased pressure for residential uses, which may not only erode the long term supply of airport industrial lands, but also pose a threat to continued 24/7 airport operations.

In summary, HIA is well positioned to attract significant growth due to its strategic location and fit with the needs of businesses in the 21st Century. Development pressures are already being experienced. The onus will be on the stakeholders to ensure that land development occurs in a manner that respects the economic potential of this valuable resource.

Figure 3-7
Lands Surrounding Hamilton International Airport

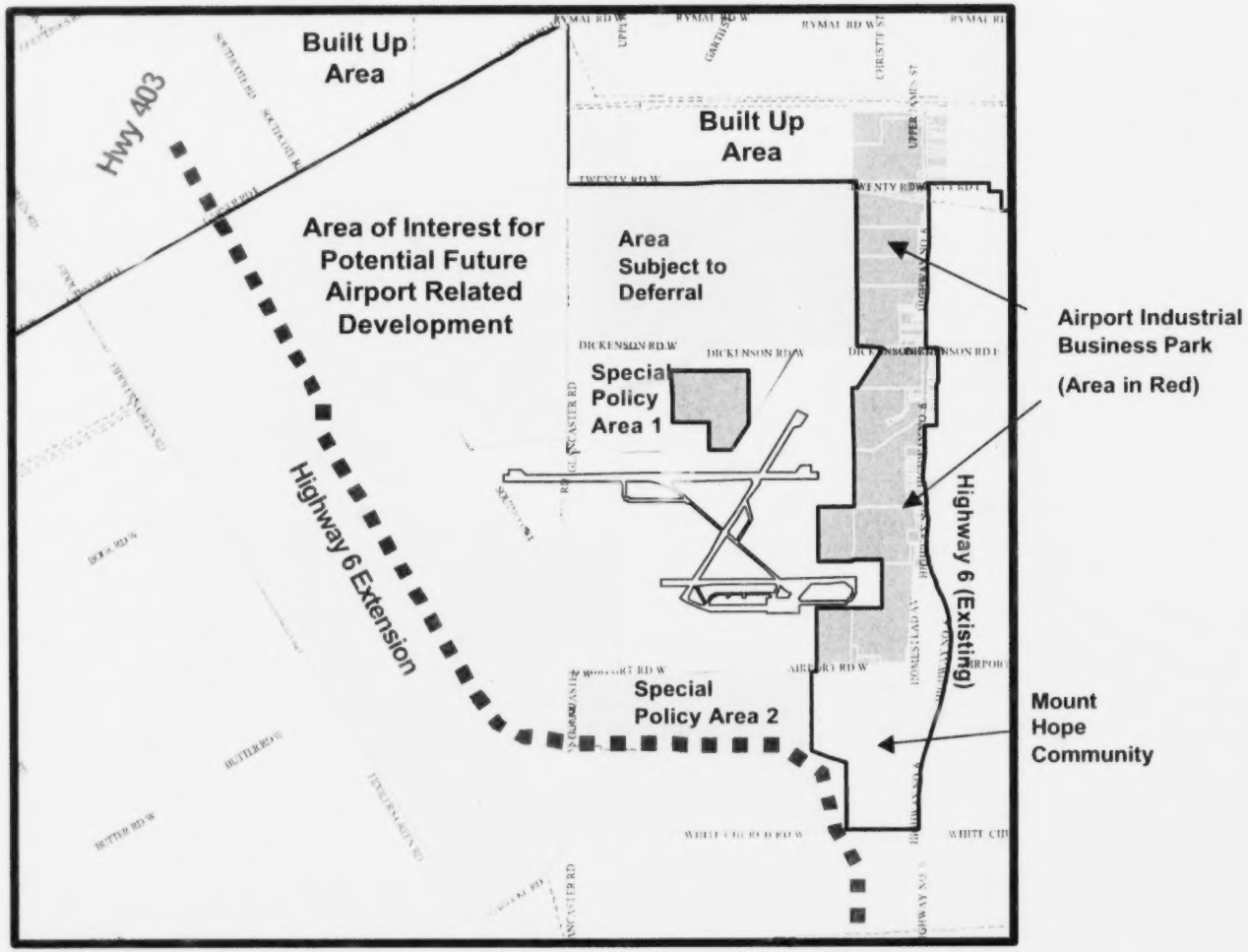
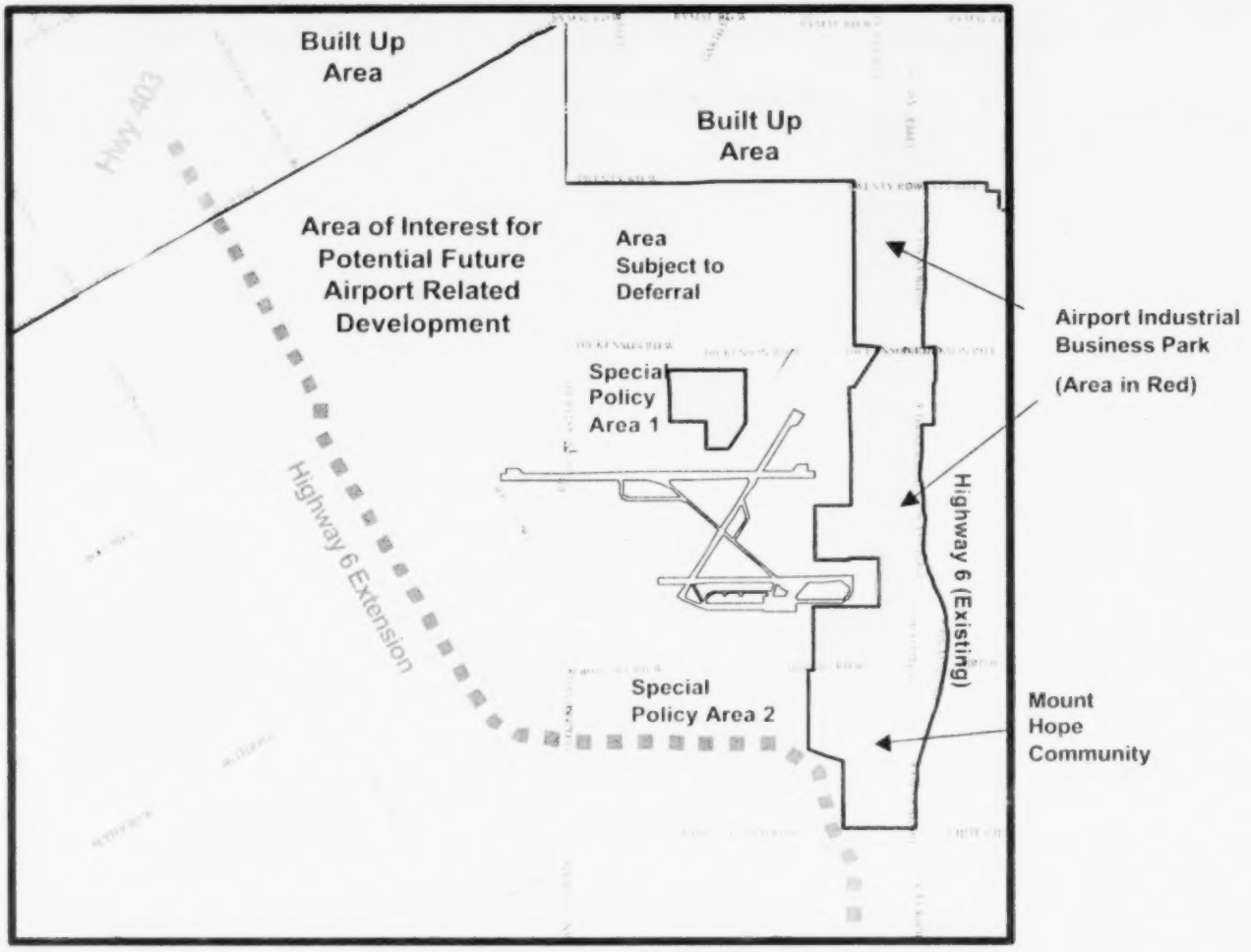


Figure 3-7
Lands Surrounding Hamilton International Airport



4.0 HIA IS BECOMING A VITAL PART OF THE SOUTHERN ONTARIO ECONOMY

The development of an airport related cluster or 'aerotropolis' in and around Hamilton International Airport has been identified as the number one strategic priority for economic development in Hamilton. Its development and expansion represents an opportunity to increase future employment and assessment to the City and is viewed as a catalyst for growth as it relates to the City's targeted industry sectors.

Equally as important is the role Hamilton International Airport plays with respect to the economic development of Southern Ontario, and particularly the rapidly growing employment belt including the Western GTA, the Kitchener-Waterloo-Cambridge Technology Triangle and the Niagara Region.

4.1 Access to Transportation Services is a Key Attractor for Firms Locating in the Golden Horseshoe

The global trend towards just-in-time delivery has resulted in a marketplace where product and parts are sourced internationally and where response time for companies to satisfy customer orders is almost immediate. As a result, direct access to national, international and intercontinental transportation routes is essential.

Economic development officials in the major municipalities in the west Golden Horseshoe were consulted as to the role HIA plays in their economic development strategies and the influence the airport exerts in terms of business attraction and retention, and expansion. The detailed results from these interviews are documented in Appendix A.

All of the Economic development agencies with whom we spoke, including Oakville, Burlington, Brantford, Kitchener, Niagara Region and CTT (Canada's Technology Triangle)[1] confirmed that one of the major factors affecting investment in their communities is the demonstrated ability to access key transportation networks including highway, rail and air.

Despite the advantages afforded many municipalities, it is widely recognized that there is considerable pressure on the existing transportation infrastructure in the Golden Horseshoe/ GTA area. Concern is generally raised as to the ability of the existing transportation network to continue to support the economic competitiveness of the region.

To many of the surrounding municipalities, improvements to and the expansion of Hamilton Airport is seen as a critical piece of the infrastructure required to keep the GTA / Golden Horseshoe competitive. Senior officials from many of the municipalities stated that as the region continues to grow, the need to establish a viable

[1] Canada's Technology Triangle is a marketing partnership comprised of Kitchener, Waterloo and Cambridge.

alternative to Pearson for the movement of goods and people will become critical.

4.2 HIA is Already Influencing Business Location Decisions

Hamilton International Airport has significant implications on the economic prospects of a wide region extending well beyond the City of Hamilton.

Municipalities around the Golden Horseshoe routinely market access and proximity to Hamilton and Pearson airports as the key locational attributes of their community to prospective companies and site selectors. Several are positioning Hamilton as the lower cost option to Pearson or Buffalo.

While they acknowledge that many of their industries are more dependent on the movement of goods by surface or rail transportation, they suggest that the presence of cargo and passenger services at Hamilton and Pearson is a critical advantage in their efforts to market and attract local investment.

In particular several municipalities cited the ease of access as it relates to the corporate jet traffic including repair and maintenance capabilities.

Several municipalities have recently undertaken business and industry surveys which concluded among other things that airport accessibility is one of the key corporate considerations when making an investment decision – HIA is seen as a significant advantage to attracting investment in the western GTA.

4.3 HIA Supports the Sectors being Targeted by the Municipalities in the Golden Horseshoe

Hamilton's Economic Development Strategy readily acknowledges that the growth of many of its existing and targeted growth sectors is dependent on ready access to the airport and the servicing of lands for future development in the surrounding area. Our discussions with many of the areas municipalities suggest that the presence and anticipated expansion of the airport will also support their ongoing efforts to target growth sectors.

In particular, HIA is viewed as providing a significant boost to tourism both in and out of the **Niagara Region**. Senior economic development staff see considerable opportunity to establish and operate charters bringing people from the US and Europe into the Niagara / Hamilton / Toronto areas.

Companies within **Oakville's** key competitive clusters, including information technology, tourism, the life sciences and media/health care rely on HIA for both the movement of goods and people. The airport increasingly is seen as a magnet for attracting business to Oakville. This is particularly relevant to their efforts at attracting head office locations as the airport provides corporate executives with an alternative to Pearson Airport. Proximity to an airport is seen as a critical location factor for **Burlington** in its attraction of target industries. While

cost factors such as property and facilities, taxes and the supply of key inputs are important variables in an investment decision, higher valued companies are looking more closely at issues, such as telecommunications, availability of labour and access to airports. Highway infrastructure, traffic flow and airport access and service are seen as Burlington's competitive advantage over other jurisdictions.

Figure 4-1 identifies Hamilton's target industry sectors together with those of the other major municipalities around HIA. Not surprisingly, many of the industries identified are being targeted by several communities. Some of the most common include:

- Metal processing;
- Fabrication;
- Machining;
- Advanced manufacturing;
- Information technology; and,
- Film/media/entertainment.

Some such as Tourism (Niagara) and Agribusiness (Hamilton and Niagara) reflect particular local characteristics. It is interesting to note that Brantford is the only community reviewed that specifically targets warehousing and distribution, which is an important part of the activity around cargo airports. While the sectors noted in Figure 4-1, in general, do not necessarily rely on air transportation, there are key sub-sectors within them that either have a heavy dependence on air transportation or for which proximity to an airport can be a significant competitive advantage.

Figure 4-1: Municipal/Regional Target Sectors

	Hamilton[1]	Oakville	Burlington	Brantford	Niagara	CTT[2]
Financial Services			✓			
Metal Processing / Fabrication / Machining	✓		✓	✓		✓
Robotics			✓			
Tourism		✓			✓	
Regional & Head Offices		✓				
Life sciences / Health Care	✓	✓				
Media / Enter.	✓	✓				
Advanced Mfg.	✓				✓	✓
Automotive	✓					✓
Information Technology incl. Software Devlpt.	✓	✓	✓			✓
Call Centres				✓	✓	
Warehousing Dist.				✓		
Food Processing	✓			✓		
Plastics				✓		
Agri-business	✓				✓	

For example, airfreight is an essential part of the advanced machinery-manufacturing sector to ensure minimal delays in the assembly processes of their customers. Film and media editing facilities frequently cluster around airports to facilitate film production schedules. The transportation

[1] Hamilton's stated targets include Industrial Manufacturing (shown as metal processing/fabrication/processing; advanced manufacturing and automotive); Agribusiness (including food processing); Health and Biotechnology (shown as Life Sciences and Health Care); Information and Communication Technology; and, the Film Industry.
[2] CTT=Canada's Technology Triangle consisting of Kitchener, Waterloo and Cambridge.

of perishable food and other agriculture products relies on airfreight. Within the biotech sector are labs and testing facilities that rely on time sensitive shipments. As a result, HIA is well situated to support the target sectors important to the surrounding region.

4.4 HIA Enhances the Investments Being Made at Pearson International Airport

Pearson International Airport is currently undergoing a $4.4 billion expansion, representing one of the largest infrastructure projects in recent Canadian history.

Hamilton Airport supports this investment by offering services and overflow capacity that cannot be handled at Pearson. Specifically, its 24/7 cargo capability, which is unavailable at Pearson, provides the opportunity for the major integrators such as Purolator, FEDEX and UPS to provide uninterrupted service to the GTA.

Furthermore, HIA accommodates service by a number of discount airlines that would be difficult at Pearson due to gate availability, cost and commitments to other airline tenants.

Finally, as an airport within a heavily urbanized area, Pearson is increasingly facing issues related to community impacts. HIA has the opportunity to take on Pearson's overflow traffic, particularly during peak periods. The ability of Hamilton to provide these services reduces the pressure on Pearson enabling the Greater Toronto Airports Authority to concentrate on its primary mandates.

4.5 The Lands in the Vicinity of HIA are Strategically Positioned to Support Regional and Provincial Economic Growth Targets

As noted earlier, the growth of an airport related cluster in and around Hamilton International Airport has been designated the top priority in the City's approved Economic Development Strategy. As such, this project is a guiding objective in decisions affecting the future of Hamilton. Development of the lands surrounding the Airport represents an opportunity to increase future employment and assessment and is viewed as a catalyst for growth as it relates to the City's targeted industry sectors.

Beyond the more direct opportunities that may be afforded to the City of Hamilton, these lands are strategically located to satisfy a much broader range of regional and provincial economic growth targets. Many municipalities in the GTA / Golden Horseshoe area of Southern Ontario are facing diminishing green field development options and are having to consider brown fields re-development in order to satisfy demand for industrial / employment land. In addition, the continuing demand for large parcels (>10 acres) of serviced industrial land has had the effect of quickly reducing available inventory in many municipalities or has resulted in municipalities being passed over for investment opportunities because they can't supply or provide suitable sites. This has left municipalities scrambling to introduce additional serviced lands. In some instances, this has meant having to encourage land developers to consider more speculative

development or in the instances where the municipality is the primary developer of having to regularly purchase and service additional lands. The dilemma that many of the municipalities face in response to the growing demand is how to predict the changing nature of demand for employment lands.

The lands in the vicinity of the airport are strategically positioned for a number of reasons.

- ✓ Well positioned to support businesses that handle intercontinental traffic of goods and people;
- ✓ Well positioned to support companies that have 7/24 operational requirements;
- ✓ Ability to support time sensitive industry sectors and sub-sectors such as – Warehousing and distribution of computer hardware & software, electronics, tele communications equipment, auto parts, apparel, perishables, or film post production activities;
- ✓ Provide ready access to major US/Canada markets and transportation corridors;
- ✓ Strategically situated to support tourism in the Niagara Region;
- ✓ Opportunity to provide for a wide range of lot size and development settings;
- ✓ Opportunity to be more cost competitive than the more developed areas of the GTA;
- ✓ Completion of Mid-peninsula corridor; and Highway 6 expansion will further enhance these trade links.

It is also important to recognize that the development of the lands around the airport for industrial and related uses will expand and solidify the future market for HIA. As such, the lands in the vicinity of HIA should be treated as an intrinsic part of the commitment to the airport by the City, the Province and other stakeholders.

4.6 HIA is Strategically Positioned to Serve Future Growth in the GTA and Surrounding Communities

Figure 4-2 outlines the current and projected population for the municipalities comprising Central Ontario, a region defined by Ministry of Municipal Affairs and Housing as part of its Smart Growth initiative. This region extends from Northumberland County to Niagara and includes the GTA/Niagara and surrounding area.

As indicated by Figure 4-2, the vast majority of existing population and future growth in the GTA and surrounding region will be occurring in the western and central municipalities. Based on projections proposed by the Ministry of Finance for the Province's Smart Growth initiative, the western municipalities including Hamilton, will attract the largest share of growth in Central Ontario over the next 20 years. In fact, by 2021, the western municipalities, for most of which HIA will be the closest international airport, will comprise over 44% of the Central Ontario population compared to only 13% for the

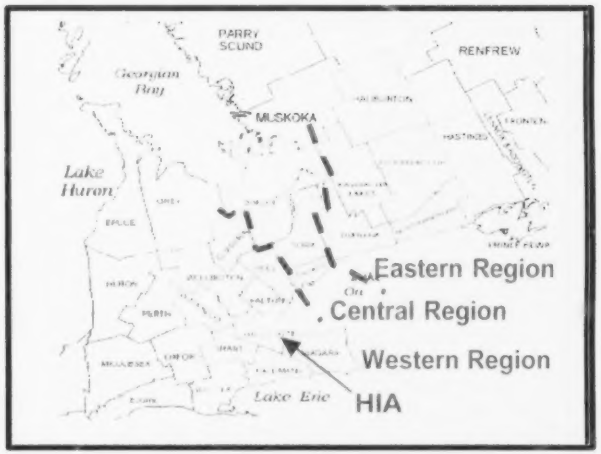
eastern communities. In fact, by 2021, the western portion of Central Ontario, extending from Peel Region to Niagara, would have a population of 4.4 million, which would today make it one of the 10 largest metropolitan areas in North America.

In summary, the municipalities surrounding Hamilton International Airport form a major metropolitan system and with a growth rate of about 30%, will accommodate the largest single concentration of new population in the province over the next 20 years. In other words, HIA is strategically located where the bulk of the region's new growth will occur and in proximity to the largest share of existing development in the region.

The economic implications of the development of HIA and surrounding lands extend over the entire Golden Horseshoe. Although HIA is a top priority for the City of Hamilton, as a catalyst for development within the largest economic region in Canada, it is also of considerable significance to the Province and the Country as a whole.

Figure 4-2
Central Ontario Population Growth by Region

	Census 1996	Census 2001	Projected(1 2021	Growth 1996-01	Growth 2001-21
East					
Durham	458,616	506,901	784,700		
Haliburton	15,321	15,085	19,100		
Kawartha Lakes	67,926	69,179	99,500		
Northumberland	74,437	77,497	110,500		
Peterborough	123,448	125,856	150,200		
EAST TOTAL	**739,748**	**794,518**	**1,164,000**	**54,770**	369,482
East as a % of Total	***10.6%***	***10.5%***	***11.2%***	***9.2%***	*13.0%*
Central					
Simcoe	329,865	377,050	589,200		
York	592,445	729,254	1,220,200		
Toronto	2,385,421	2,481,494	2,994,900		
CENTRAL TOTAL	**3,307,731**	**3,587,798**	**4,804,300**	**280,067**	1,216,502
Central as a % of Total	***47.6%***	***47.5%***	***46.2%***	***47.0%***	*42.7%*
West					
Dufferin	45657	51013	74,300		
Peel	852526	988948	1,587,600		
Halton	339875	375229	588,200		
Wellington	171406	187313	248,000		
Waterloo	405435	438515	587,900		
Hamilton	467799	490268	580,100		
Brant	114564	118485	155,300		
Haldimand	102575	104670	129,900		
Niagara	403504	410574	477,900		
West Total	**2,903,341**	**3,165,015**	**4,429,200**	**261,674**	1,264,185
West as a % of Total	***41.8%***	***41.9%***	***42.6%***	***43.9%***	*44.4%*
CENTRAL ONTARIO TOTAL	**6,950,820**	**7,547,331**	**10,397,500**	**596,511**	2,850,169



SOURCE: Central Region Geography based on Ministry of Municipal Affairs Smart Growth Zones. [1] 1996 and 2001 Population data based on Census of Canada. 2021 Projection based on 2000 Ministry of Finance Assessment Projections adjusted by PwC to reflect the Census population.

5.0 AIRPORT COMMUNITIES ARE MAJOR ECONOMIC ENGINES IN THE UNITED STATES

5.1 General Trends In Airport Development

Efforts to speed efficiency of cargo distribution have lead to the provision of several key services at airports and on their surrounding lands. The clustering of manufacturing, warehousing, and distribution firms at airports and their surrounding industrial sites further necessitates the capability to distribute products in an efficient and cost-effective manner. Based on a review of major U.S. cargo airports, typical facilities and business types found at these sites and their surrounding lands include the following:

- Regional integrator operations, such as FedEx, or UPS,
- On site customs brokers,
- Freight forwarders,
- Warehousing and distribution firms,
- Advanced manufacturing firms,
- Inspection services (e.g., agriculture),
- National trucking and/or rail hubs.
- Office and Retail Centres and associated services.

In addition to the facilities and businesses listed above, typical infrastructure and/or operational requirements for business park tenants include the following:

- 24-hour, 7-day operations – Airports that do not provide flexible operating hours for air cargo are limiting their appeal and subsequently their potential of becoming a major distribution hub.

- Direct Taxiway Access for airport businesses,

- Free Trade / Foreign Trade Zones (FTZ's) – refer to commerce sites (industrial sites, buildings) set up in or near U.S. Customs ports of entry where goods are considered legally outside U.S. Customs territory. In Canada, the legislation is different, and essentially enables individual companies to apply for status similar to those of US firms operating in an FTZ.

- Large parcels of serviced, available industrial land to enable construction and/or expansion of shipping and logistics-related facilities.

Public and Private Sector Co-operation

In airport development, cooperation among a combination of groups such as Airport Authorities, local government agencies (including economic development offices) and private sector representatives is a recurring theme. These organisations commonly work together or form partnerships to market advantages of airport proximity for businesses, and target industry sectors to establish operations at or near airports. Typically these organizations offer a number of incentive packages to attract companies.

Based on a review of U.S. cargo airports, economic incentive packages that could be offered to establish and/or expand air cargo operations might include the following:

- Various tax credits and exemptions;
- Employee training credits;
- State income tax exemptions;
- Property tax incentives;
- Government subsidization of large-scale facilities and infrastructure;
- Federal exemption from certain air cargo regulations;
- Various state incentives for work force development and facility improvements; and,
- Conduit financing for capital projects and favourable rates and leases from the local airport authority.

In Ontario, two new programs have been announced by the Provincial Government that may enable Hamilton to more effectively compete with the U.S. jurisdictions for the development of lands surrounding HIA.

Opportunity Bonds are debt financing instruments that enable municipalities to raise capital for infrastructure. The principle behind the bonds is that investors receive a tax exemption on the interest, thereby enabling the municipalities to offer them at lower interest rates. This program is currently at the consultation stage to allow the Government to develop further details with regards to implementation.

Tax Incentive Zones, which work similar to "Enterprise Zones" in other jurisdictions are intended to provide certain tax exemptions for companies locating in areas targeted for community renewal, the regeneration of abandoned industrial sites or for public investment that could attract value added industries. As with Opportunity Bonds, the Tax Incentive Zone program is at the consultative stage, however, the Provincial government is seeking six pilot municipalities. The City has made application to the province for a Tax Incentive Zone pilot project focused on the development lands proximate to the Hamilton International Airport.

The Importance of Integrator Operations

In many instances, attraction of a major integrator such as FedEx, UPS, or DHL plays a vital role as a catalyst to attract additional firms that rely on time-sensitive delivery of goods. This situation occurred at Memphis, the headquarters of FedEx, as well as Indianapolis, which is considered its second national hub. Substantial economic activity has been generated in these two hub cities, attributable in part to the presence of the FedEx hubs. The national hubs at Memphis and Indianapolis sort packages intended for shipment to a city outside of the region where they originate. In addition to its national hubs, FedEx operates a number of secondary hubs, such as Piedmont Triad Airport, that sort packages destined for the local or regional market.

In Indianapolis, the FedEx operation was originally intended to alleviate pressure on the Memphis facility; however, rapid expansion in the mid-1990s required the creation of a larger hub that will eventually have a capacity nearly equal to the Memphis facility. Originally, the Indianapolis FedEx site was purchased from Purolator Courier in the mid-1980s, so there was no major initial investment subsidy or incentives from state officials. However, the expansion in the 1990s involved extensive support of state and local government officials, typically through means of infrastructure improvements. Following expansion, FedEx employed 3,500 employees. It is anticipated that similar success will be attributable to the development of a FedEx facility at Piedmont Triad International Airport in North Carolina.

Transportation and Land Use Development Trends

Realising the enormous growth potential for air cargo, Airport authorities are setting aside large tracts of land in anticipation of future requirements. Airports that have successfully developed airport lands have been proactive in securing and zoning additional land parcels to accommodate expected future growth.

Low shipping costs and extensive highway networks have resulted in heavy reliance on surface transport for cargo distribution by trucking carriers in North America. This trend is projected to continue for the foreseeable future, resulting in higher potential for air cargo in other markets outside North America that lack similar highway infrastructure (e.g., Asia). Despite the operating advantages and convenience offered to firms near to airport locations, firms typically require a multi-modal hub, since most rely on more than one means of shipping. Airports often serve as the anchor of industrial park development at multimodal hubs and are a key part of marketing efforts.

Once established as a multimodal distribution hub, many airports are integrating other types of uses to attract clusters of similar users. In some cases, complexes containing a diverse range of uses such as information technology, retail, service, residential, recreation and educational institutions are established as the airport grows and attracts supporting industries and facilities. The AllianceTexas project located near Fort Worth, Texas is a prime example of this type of development. Six unique development sectors have evolved at this project and include an industrial area, a business complex, an intermodal hub, and an advanced technology centre. In this instance, these development sectors were part of the overall development plan for the airport and its surrounding lands.

While most airports cannot offer the planning scale and the diversity of firms found at AllianceTexas, there is a trend for airports to link together business, service and/or technology centres with other airport lands, or use airport industrial developments as a foundation to link other employment and service uses in and around airports.

The Changing Nature of Shipping and Logistics

The shipping and logistics sector is not a static industry. Rapid changes in electronic commerce, global trade, high value industries and supply chain management strategies will continually alter the methods of production and provision of services. Reflecting these advances, the means by which goods and services will be delivered to consumers will have direct impacts on shipping and logistics.

Airport-related developments at three major U.S. cargo airports are outlined below. Each of the airports represents the successful attraction of a major integrator and the benefits that can be reaped from effective planning and marketing for cargo airports.

5.2 Dallas-Fort Worth Alliance Airport – Private Investment Stimulates Rapid Growth

AllianceTexas is a master planned business community comprising some 15,000 acres centred around Fort Worth Alliance Airport. The project was conceived by Ross Perot Jr., founder of Hillwood Development Corporation, the real estate development and investment firm responsible for AllianceTexas.

AllianceTexas is divided into three phases:

- **Circle T Ranch** – A 2,500 acre master planned community including a golf course and recreation community, a 1.6 million square foot retail project, and 800 acres of corporate campuses and office sites. Circle T Ranch is some 6 kilometres from Alliance Airport

- **Heritage (Future Development)** – a 2,300 acre "wired" residential community with a 10-acre recreation centre, about 7 kilometres from Alliance Airport.

- **Alliance** – A 9,600 acre manufacturing, trade and logistics centre developed around Fort Worth Alliance Airport. The components of Alliance include:

  - ***Fort Worth Alliance Airport*** – An industrial (cargo exclusive) airport owned by the City of Fort Worth and managed by Alliance Air Services, a subsidiary of Hillwood.

  - ***Alliance Center*** – A business complex predominantly made up of air-related companies.
  - ***Westport at Alliance*** – Incorporates 1,500 acres surrounding the Burlington Northern Santa Fe (BNSF) main north-south line and its associated Intermodal Hub Centre.

  - ***Alliance Crossing*** – A business and service area for Alliance residents and employees located on 170 acres along Interstate 35W and Westport Parkway.

- ***Alliance Gateway*** – Located on the eastern section of the Alliance complex, this 2,400-acre area offers access to Union Pacific Railroads north-south line, as well as, Fort Worth Alliance Airport and Dallas-Fort Worth International Airport.

- ***Alliance Advanced Technology Center*** – Intended to serve as a high technology corridor with access to nearby Fort Worth Alliance Airport and Interstate 35W.

- ***Alliance Commerce Center*** – Located on the north side of the airport, this is a 300-acre business park designed to accommodate small to medium-sized enterprises.

These components are illustrated on the Master Plan shown in Figure 5-1.

Alliance

Alliance is the 9,600 acre manufacturing, trade and logistics centre serving as the anchor of the AllianceTexas development which was initiated in 1989 with the opening of Fort Worth Alliance Airport, a joint initiative between the City of Fort Worth, the Federal Aviation Administration and Hillwood. Fort Worth Alliance Airport proclaims that it is the world's first industrial airport to utilize its multi-modal transportation capability to link manufacturing and distribution facilities with telecommunications, materials handling systems and logistics operations. Aggressive recruitment of firms by airport management has led to an extensive list of tenants that now numbers over 100. Thirty three (33) of which are Fortune 500 firms. Top employers at AllianceTexas are listed in the following table.

Figure 5-2

Alliance Major Employers Summary

Company Name	Employees
Nokia	2,800
American Airlines	2,350
Fidelity	1,400
Southwestern Bell Telephone	1,069
Fed Ex	863
Burlington Northern Santa Fe	495
Gulfstream Aerospace	450
Perlos	445
Randalls Food Markets	442
AdvancePCS	425
AT&T	420
DaimlerChrysler	400
Texas Instruments	256
GM	250
Mitsubishi Motor Sales	250
Kraft Foods	238
Tech Data	238
Michaels Stores	231
JC Penney	225
InteSys	200

A listing of companies located at, or near Fort Worth Alliance Airport and two other major airports are provided in Appendix B. These lists were extracted using Dun & Bradstreet's business database for zip codes surrounding each cargo airport.

Alliance was initiated in 1989 and by 2002, approximately 3,000 acres have been developed over this 13 year period averaging between 200 and 250 acres per year.

Alliance represents a multi-modal facility due to its highly accessible air, rail and highway infrastructure. Alliance Air Services operates a Fixed Base Operation (FBO) for corporate and general aviation purposes. The airport has 24/7 operations and provides direct taxiway access to business facilities at Alliance Center. The airport's parallel runways of 9,600 feet and 8,200 feet accommodate the full range of commercial aircraft currently in operation. Plans are in place for a future extension of the primary runway to 13,000 feet. Union Pacific and BNSF, two major US rail carriers have lines on the east and west borders of the development. BNSF also operates one of the nation's largest intermodal yards at Alliance. Alliance is intersected by Interstate 35W, referred to as the NAFTA superhighway due to its connection to Mexico and Canada.

A number of facilities have been developed at Alliance as a result of the airport's central location within North America and to support the incoming industries to the development. FedEx operates its Southwest Regional Hub at Alliance. This facility represents the only fully automated hub in Fed Ex's distribution network. It is also unique facility in that it was designed for throughput operations, similar to the Memphis and Indianapolis national hubs. Throughput operations handle packages that do not originate nor are destined for their respective regions. Alliance's facility is referred to as a regional operations centre, serving the surrounding market with distribution into southwest and west coast Regions.

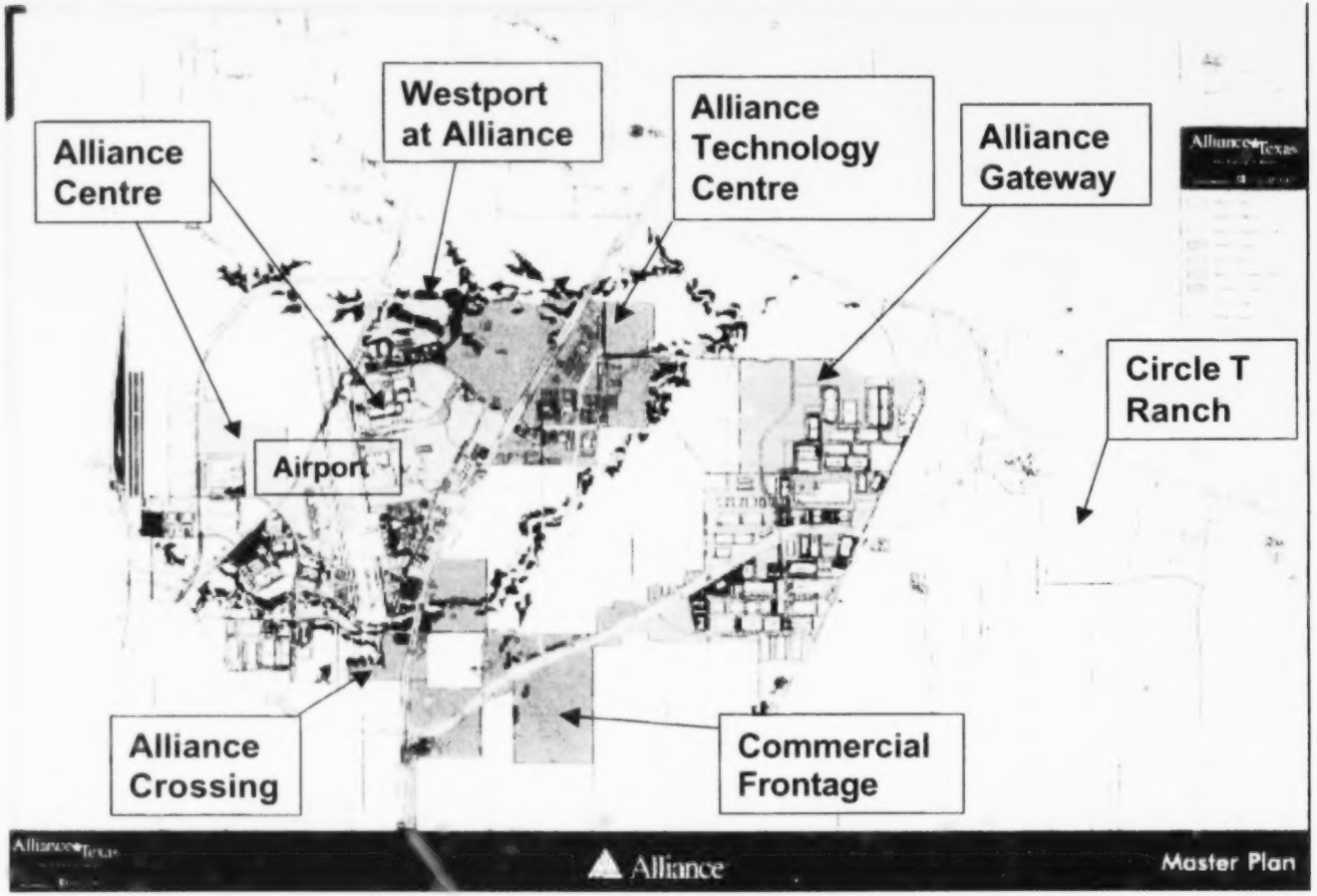
Alliance Air Trade Center is a 53-acre air cargo facility that is under development. Despite its early success in drawing manufacturing, distribution, logistics and high-tech tenants, huge tracts of land remain available for expansion at AllianceTexas.

In addition to the facilities provided at AllianceTexas, a wide array of services are available to expedite shipping and lure firms to the area. Major services at AllianceTexas include the following:

- Free Trade Zone status,
- On-site US Customs office,
- Freeport tax exemption; and
- User-free airport status.

Success of the AllianceTexas project is evident in a recent study that measured the economic impact of the project at $1.99 Billion for 2001, and $19.13 Billion between 1990 to 2001. The number of jobs created from 1990 to 2001 is estimated at 20,317 and over 20 million square feet of commercial space has been developed in this period.

Figure 5-1
AllianceTexas Master Plan



5.3 Rickenbacker Airport, Ohio – Commitment by the Public and Private Sector to Work Together

Rickenbacker International Airport, situated in Columbus, Ohio is a cargo and passenger airport, anchoring an airport community comprising 13 business parks. Together the 13 business parks comprise some 6,988 acres, 23.2 million square feet of industrial/commercial space and an employment base of 10,000 persons. These have been illustrated on Figure 5-3. A further 2,000 acres have been identified for potential future development. The largest single industrial area is the Rickenbacker Industrial Park and Airport comprising some 4,600 acres, 11.5 million square feet of development and 6,300 employees.

Rickenbacker represents a successful transformation of a former US Air Force Base into a private sector logistics centre driven by the mutual support of the Rickenbacker Port Authority (RPA) and the Franklin County Commissioners.

A formula for success typically demonstrated at cargo airports is cooperation among various bodies including an airport authority, government representatives (including economic development organisations), and the private sector. In the case of Rickenbacker, a vision to capitalize on the area's infrastructure using the region's highways, rail lines and airport to enable effective transport of goods internationally was launched with the formation of the Greater Columbus Inland Port Commission.

The Greater Columbus Inland Port Commission consists of local businesses, government agencies and economic development organizations with a mandate to assist companies in transporting freight in a fast, efficient and cost-effective manner.

The adjacent industrial park and the on-site Foreign-Trade Zone further enhance the region's transportation and distribution capabilities. Currently, over 14 major carriers, 40 freight forwarding companies and 140 trucking firms operate in the region.

Rickenbacker Port Authority

The organization responsible for ensuring development of the region as a multimodal port is the Rickenbacker Port Authority Organization (RPA). The Franklin County Board of Commissioners formed this group in 1979 and the four lines of business for the RPA now include real estate development and marketing, Rickenbacker International Airport, Foreign-Trade Zone No. 138, and economic development financing.

The RPA has played a vital role in industrial growth for Rickenbacker by developing the Air Cargo Terminal complex and through provision of pro-business marketing efforts and services aimed at private investors. RPA

economic development financing is intended to provide financing for organizations to reduce the cost of financing and/or strengthen financial statements with the overall goal of creating employment, increasing taxes collected and the construction of port and other public or private facilities.

A full range of aviation services is offered at Rickenbacker including passenger service, general aviation and military operations; however, air cargo facilities represent the primary economic development engine.

The complex has evolved into a multimodal, logistics hub that has developed concentrations of companies in the following industries and/or business types:

- Cargo airlines/International airfreight,
- Manufacturing and distribution,
- Freight forwarding,
- Corporate aviation,
- E-commerce fulfilment and distribution; and
- Third party logistics (3PL) providers.

In addition to these sectors, over 110 companies are now located at Rickenbacker, including many firms in apparel, automotive, electronics and telecommunications. Firms in the warehouse and distribution sector are being targeted for lands adjacent to the airport. The entire Rickenbacker development area, which includes lands without airside access, will provide space for hotel, restaurant and office development opportunities in a central commercial area.

The Southeast sub market has dominated industrial growth in the Greater Columbus area, accounting for half of the area's industrial development in 1999. This growth has been spearheaded by private investment.

Figure 5-4
Rickenbacker Area Major Employers

Company Name	Activity	Employees
Speigel/Eddie Bauer (DFS, Inc.)	Logistics	1,090
SubmitOrder.com	E-commerce	500
United Parcel Service	Shipping	400
Gap Direct	Fulfillment	370
Forward Air	Transportation	350
WalMart Optical	Eye care clinic	300
Fed Ex Air Cargo Hub	Shipping	258
EGL Eagle Global Logistics	Transportation/Logistics	250
Pilkington Libby Owens Ford	Automotive/Aerospace	250
Petsmart, Inc.	Distribution	240
3PF.com	3rd party fulfillment	230
Ryder Logistics	Logistics	225
Kraft Foods Inc	Food Distribution	210
Columbus Processing Company	Manufacturing/Warehousing	200
Essilor of America, Inc	Distribution	180
American Health Packaging	Distribution	165
Airborne Logistics	E-commerce	150
Ameritech (Security Link)	Information Technology	150
HFI, Inc		150
Pinnacle Data Systems, Inc.	Information Technology	150
AC Delco	Automotive	125
Snow Aviation	Aviation Design/Development	121
Allegiance Health Care Corp	Health Care	115
Robinson Transport Inc.	Logistics	112
C/D Nifco	Automotive/Electronics	106
Airborne Logistics Services	E-commerce	100
Dayton Rogers of Ohio	Assembly	100
Exel, Inc.	Logistics	100

Provision of trucking hubs such as the Eagle Global Logistics and Forward Air facilities at Rickenbacker serve a market that is far more heavily employed in trucking and

warehousing compared to the national average (70% locally as opposed to 51% in the US). Logistics companies have experienced tremendous growth at Rickenbacker in recent years and have contributed to the overall development of the airport. In the fall of 2000, Eagle Global Logistics signed a lease for a 510,000 square foot facility and cargo landing figures increased 150 percent from 1999 to 2000. Airport Logistics Services doubled its facilities in 2000 to serve the airport and Forward Air recently leased an airside facility to transport cargo between domestic and international airlines, as well as forwarders and integrated carriers.

Air Cargo Facilities

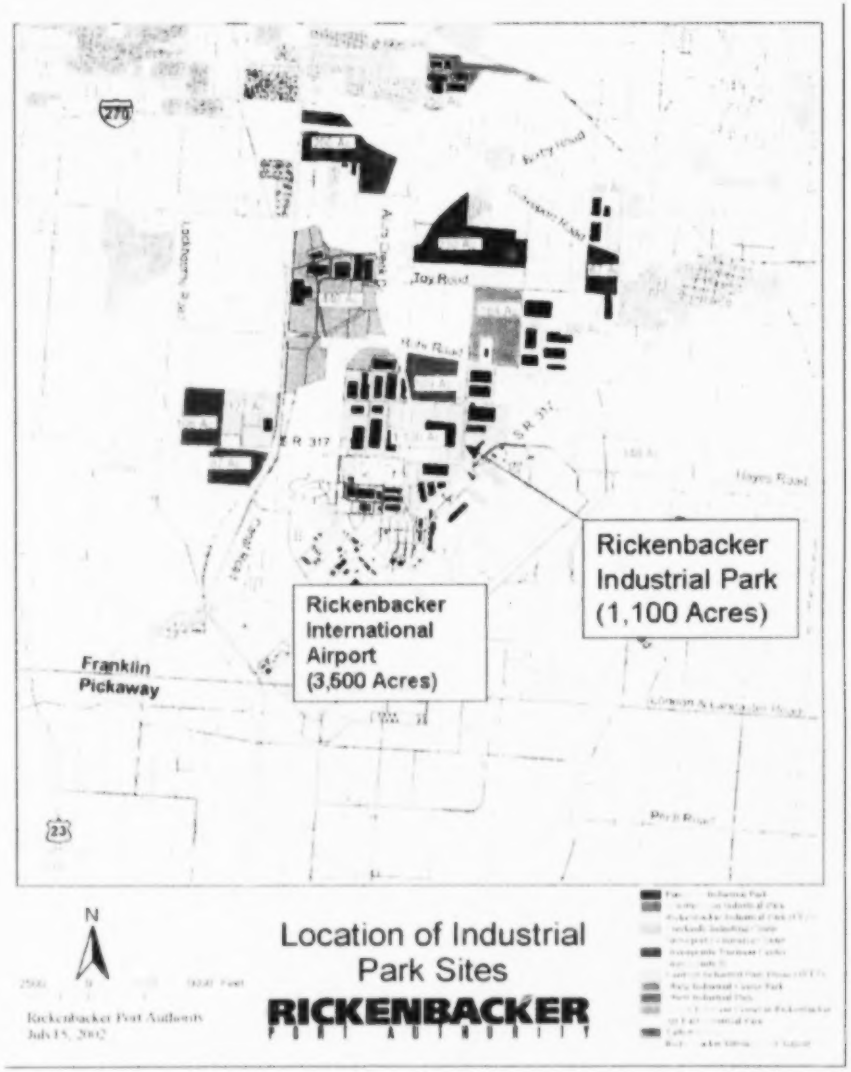
FedEx and UPS, two of the air cargo industry leaders, have expanded operations at Rickenbacker in recent years. The FedEx and UPS regional gateway operations are regional trucking and air cargo distribution centres for domestic and international cargo. Air cargo companies with air cargo operations at Rickenbacker include the following:

- FedEx,
- UPS,
- Eagle Global Logistics,
- Evergreen International Airlines; and
- Forward Air.

Rickenbacker's Air Cargo facilities consist of five air cargo terminal buildings offering more than 500,000 square feet of space with direct airside access within the Foreign Trade Zone. The Franklin County Improvement Corporation is responsible for the development of the Air Cargo Terminal Complex. At this time, the Air Cargo Terminal Complex contains Air Cargo Terminals 1 to 3. Air Cargo Terminals 4 through 7 are scheduled for development over the next 2 years and will total close to 4.7 million square feet. As well, over 3 million square feet of additional air cargo facility space is planned for construction in the next decade.

The terminal complex development at Rickenbacker will contain a charter passenger facility, corporate hangars, a hotel, restaurant and offices. These facilities are intended to enhance growth of the area's corporate presence and stimulate new business growth and development. This development exemplifies a trend witnessed at other major cargo airports whereby a business centre is planned following the successful implementation of air cargo infrastructure. The passenger terminal will accommodate domestic and international aircraft for charter, corporate and military flights, with a full Federal Inspection Service to handle international charter flights.

Figure 5-3
Rickenbacker Area
Business Parks



5.4 Piedmont Airport, North Carolina – Long Range Vision Pays Off

The Piedmont Triad Area is the metropolitan region comprised of 12 counties between the Cities of Greensboro, Winston-Salem, and High Point, North Carolina.

In the late 1970's the various local municipalities and economic development agencies began to implement their vision for the area as a centre for technology and entrepreneurial development centred around an international airport. The initial step involved the identification of required lands, annexation from the constituent municipalities and extension of municipal services. Piedmont Triad International Airport now occupies a 2,800-acre complex that is owned and operated by the Piedmont Triad Airport Authority. Marketing for the Region is undertaken by the Piedmont Triad Partnership, a consortium of private developers, businesses and public agencies. The airport is a centre for commercial and industrial activity that generates close to $1 billion in economic activity for the area and employs approximately 4,000 individuals, according to data provided by the Triad Partnership. The airport serves North Carolina's manufacturing region providing 24/7 service, with non-congested air space and it is also home to major truck terminals.

Attraction of newer growth industries to the airport and its surrounding industrial lands is of vital importance for the Piedmont Triad region since it has experienced major declines in its 3 key traditional sectors of apparel and textiles, tobacco and furniture products. Sectors that have experienced growth in the area include: the manufacture of chemicals and allied products and fabricated metals, electronics and electrical equipment and trucking and warehousing. The proximity of Wake Forest University and Medical Centre is also viewed as a factor in the growth of technology intensive businesses in the Triad area. The expansion of Piedmont Triad International Airport also played a key role in attracting newer, high-value industry to the region. The airport specifically led to the development of major cargo facilities, including:

- Air Cargo Services,
- Airborne Freight,
- Emery Worldwide,
- FedEx,
- Ryan International,
- TradeWinds,
- UPS; and
- US Postal Service.

FedEx - A Local Economic Development Driver

A major impetus for future development at Piedmont Triad will be the establishment of FedEx's one million square foot package sorting hub. This facility alone will create over 500 jobs at FedEx and another 1,000 indirect

spin-off jobs in Greensboro according to information provided by the Triad Partnership. The incentive-laden deal put together by the airport authority and State officials amounted to over US$ 270 million, half of which was provided solely by the State. These inducements far exceeded those typically offered by the State.

The economic development agency responsible for marketing Piedmont Triad, Forward Greensboro was cognisant that landing the FedEx facility would draw other large shipping firms to the airport, acting as a catalyst for other industries in the surrounding area.

Conservative estimates made for expected "downstream investment' indicate that it should far surpass the initial investment for construction and operation of the FedEx hub facility. In other FedEx hub locations, economic growth has occurred in advanced manufacturing and warehousing distribution, industries which typically offer high wage jobs.

The FedEx hub will be similar to the existing facility at Alliance and facilitate movement of goods in the high growth regional corridor of the Southeast, which has experienced a significant increase in domestic packages. It is expected to alleviate pressure on the two national hubs at Memphis and Indianapolis. Companies that will benefit most from locating near the Piedmont hub are those who have time-sensitive shipments intended for customers along the east coast. An economic impact study conducted in 1999 estimated that construction and 10 years of operation of the FedEx hub will contribute approximately US$ 1.67 billion in the twelve-county Piedmont Triad region.

The sectors to benefit most from the facility are expected to be in the following sectors:

- Transportation,
- Communications and Public utilities,
- Construction,
- Manufacturing,
- Trade, and
- Services.

The attraction of FedEx serves as an example of how co-operation among government, airport authority and private sector representatives can attract large-scale employment uses for airports. Aside from FedEx, other major tenants at the airport represent a broad range of sectors and include the following companies:

- TIMCO,
- Cessna,
- Marriott, and
- Atlantic Aerospace.
- Aviation School, and
- Caribbean Transport Services.

Figure 5-5
Piedmont Triad Airport Plan

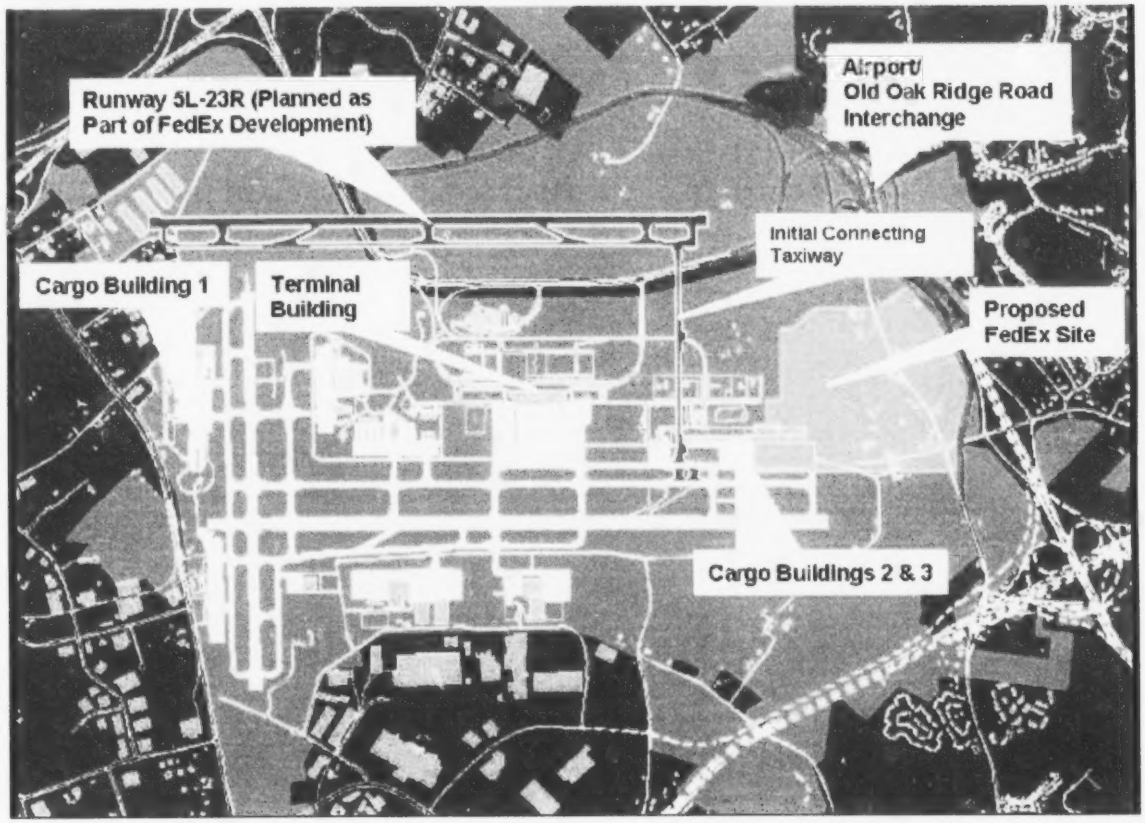


Figure 5-6 summarizes the current employment by major activity at Piedmont Triad Airport. The airport supports a direct workforce of approximately 4,000 persons. The largest single employer is the Triad International Maintenance Corporation, an maintenance and repair company specializing in Boeing, Douglas and Airbus aircraft, with some 1,800 employees. This employment total does not include the FedEx facility, currently under development. It is also important to recognize that in the immediate vicinity of the airport is an employment base of approximately 40,000.

Figure 5-6
Major Employers at Piedmont Triad Airport

Economic Activity	Employment
Aviation Maintenance	1,800
Contract Services	1,284
Airlines	896
Hotel/Restaurant/Retail	360
Ground Transportation	270
Cargo Carriers	240
General Aviation	199
Government	190
Airport Authority	119
Aviation Training	14
Corporate Aviation	11
Total	**4,004**

5.5 Airports Can Support Large Employment Concentrations

Figure 5-7 outlines the employment by economic sector within a five kilometre radius of each of the three benchmark airports based on 2001 Dunn & Bradstreet employment data.

The total employment ranges from just under 29,000 at Rickenbacker to approximately 49,000 at Alliance. It is important to recognize that prior to the development of the airports, the surrounding lands were largely undeveloped and that much of this employment was created in as short a time frame as10 years in the case of Rickenbacker and as long as 20 years in the case of Piedmont.

All three airports have relatively large manufacturing bases and strong representation in the wholesale trade and transportation/logistics sector. The "other sector", which constitutes either the largest or second largest category for each airport, is comprised largely of government, institutional and other services. Within the overall employment base of each airport are specializations unique to each location. For example, Piedmont has a large concentration of employees in the apparel, building products and chemical/pharmaceuticals manufacturing, as well as aircraft maintenance repair and overhaul.

Although, not discernable from the data shown on the table, Rickenbacker has developed some unique specialty clusters. "Optical Village" is a partnership between Airborne Logistics Services (ALS), six eyeglass

manufacturers and a private developer. The concept works to essentially provide a 24-hour turnaround for eyeglasses from a customer order to the delivery to the retail outlet. Rickenbacker is also developing a technology cluster including computers, e-commerce and e-business fulfilment. Of the three benchmarks, Alliance has the largest manufacturing base, over 40% of which is comprised of the computer and electronics sectors. Alliance also has the largest employment base in the transportation and logistics sector at 10,000 employees.

By comparison, lands within 5 kilometres of Hamilton International Airport are almost entirely rural, with the exception of a small portion of the commercial strip on Upper James Street.

Figure 5-8 compares the market parameters of HIA with those of the benchmarked airports. HIA ranks third in terms of cargo volume, although overall volumes are not significantly different. Piedmont Triad is the only other airport that has regular passenger service. It generates some 1.4 million passenger trips per year. HIA is estimated at 1.0 million in 2002. Given that the area around HIA is still undeveloped and that it is still in the process of building its passenger service, HIA fares very favourably with the benchmarks in terms of its operating volumes.

It is also interesting to note that HIA lies within an urban corridor of some 7.4 million persons, which is considerably larger than the metropolitan areas surrounding the other benchmarks. We would note that Columbus lies in the centre of a triangle formed by Cleveland, Cincinnati and Toledo, which would have a combined population comparable to the Golden Horseshoe. We would note that travel distances are considerably greater[1] than they are within the Golden Horseshoe and the Cincinnati/Cleveland/Toledo triangle is not a contiguous urban area.

In terms of the development that has occurred around the benchmarks, designated industrial land ranges from about 2,000 acres in Piedmont to 10,000 acres at Alliance. These figures represent only the acreage in planned business parks in proximity to the airport only and does not include the airport or other land uses. The figure for Piedmont Triad is likely underestimated due to the existence of other employment lands throughout the Triad region that would benefit from the airport activity. By comparison, Hamilton has only approximately 800 acres designated and only partially serviced.

Total employment at each of the airports and surrounding business parks ranges from 7,000 at Piedmont to about 20,000 at Alliance. HIA currently has an employment base of about 1,550 jobs and 1,300 person years of employment .

As noted above, the employment potential within five kilometres of the airports is as great as 49,000 persons. HIA is still surrounded by rural lands.

[1] The travel time is two and a half hours from Columbus to either Cleveland or Toledo and two hours from Columbus to Cincinnati. The travel time from Hamilton to Toronto and Niagara Falls is approximately 45 minutes.

In conclusion, the new economy has created substantial opportunities for airport related development. The experience of Piedmont Triad, Alliance and Rickenbacker, suggests that with the right ingredients, cargo airports combined with other transportation facilities can stimulate rapid economic growth.

5.6 Secondary Airports Play an Important Role Relieving Passenger Congestion at Major Airports

Airline deregulation in the United States in 1978 created new opportunities for regional, discount and charter airlines. Deregulation also stimulated a significant demand for lower cost airport facilities that could handle the resulting increase in regional and low-fare travel.

Significant investments were made to upgrade many secondary airports in major U.S. cities. Airports such as Love Field in Dallas, William P Hobby Airport in Houston, Chicago Midway Airport and Islip Macathur Airport on Long Island, NY, have grown to become important relief airports for their communities.

Love Field, for example, is situated some 20 minutes outside of Dallas. In 2001, it handled some 6.5 million passengers – about 12% of the volume of DFW International Airport. Owned and operated by the City of Dallas, Love Field is home to three airlines – Southwest, Delta Connection and Continental Express, which serve 17 destination in the Southern U.S.

William P. Hobby Airport in Houston is part of the Houston Airport System together with George Bush Intercontinental Airport. Hobby is served by eight scheduled passenger airlines and is the largest hub airport for Southwest Airlines. Only U.S. destinations are served at Hobby Airport, with all international service being flown from George Bush Airport. In 2001, Hobby handled a total passenger volume of 8.6 million, compared to about 35 million at Bush (i.e. about 25% of the passenger traffic).

Chicago's Midway Airport is one of four airports within the Chicago Department of Aviation system. The largest being O'Hare International Airport. With a passenger volume of some 15.6 million, it is the busiest secondary passenger airport in the U.S. It serves about 25% of O'Hare's volume. It is home to 17 carriers serving both domestic flights and service to Mexico and the Caribbean. In March 2001, a new 678,000 square foot terminal building was opened.

As has been the case in recent years, in the foreseeable future, it is expected that growth in airline passenger traffic will be generated largely through discount air travel. With anticipated growth in passenger volume at Pearson, there will be increased pressure for a secondary airport to relieve a portion of the region's air traffic.

Alternate airports such as HIA, can play an important role within their economic regions by serving a relief function for major airports; by providing a low-cost niche for discount, charter and regional passenger traffic; and by maintaining a non congested environment for air cargo and integrated courier movements.

Figure 5-7
Employment within Five Kilometres of the Benchmark Airports

	Peidmont Airport		Rickenbacker Airport		Alliance Airport	
Construction	**1,911**	**5%**	**2,092**	**7%**	**4,018**	**8%**
Manufacturing	**9,009**	**22%**	**6,674**	**23%**	**13,600**	**28%**
Food	*626*	*2%*	*176*	*1%*	*1,616*	*3%*
Apparel/Textiles	*2,351*	*6%*	*500*	*2%*	*35*	*0%*
Building Products	*1,226*	*3%*	*745*	*3%*	*850*	*2%*
Chemical/Pharmaceuticals	*2,361*	*6%*	*-*	*0%*	*158*	*0%*
Plastics	*303*	*1%*	*669*	*2%*	*628*	*1%*
Machinery	*301*	*1%*	*873*	*3%*	*222*	*0%*
Computer & Electronics	*92*	*0%*	*-*	*0%*	*5,942*	*12%*
Automotive/Parts	*17*	*0%*	*-*	*0%*	*474*	*1%*
Aircraft/Parts	*67*	*0%*	*26*	*0%*	*805*	*2%*
Other	*1,665*	*4%*	*3,685*	*13%*	*2,870*	*6%*
Wholesale Trade	**2,592**	**6%**	**2,857**	**10%**	**5,000**	**10%**
Retail Trade	**4,756**	**12%**	**3,755**	**13%**	**1,519**	**3%**
Transportation & Logistics	**1,995**	**5%**	**4,542**	**16%**	**10,803**	**22%**
Professional Scientific & Technical Servic	**50**	**0%**	**-**	**0%**	**287**	**1%**
Management	**5,276**	**13%**	**-**	**0%**	**2,136**	**4%**
Accomodations	**35**	**0%**	**30**	**0%**	**330**	**1%**
Food Services	**1,052**	**3%**	**612**	**2%**	**1,272**	**3%**
Aircraft Maintenance Repair Overhaul	**1,800**	**4%**	**-**	**0%**	**20**	**0%**
Other	**11,762**	**29%**	**8,198**	**29%**	**9,936**	**20%**
TOTAL	**40,238**	**100%**	**28,760**	**100%**	**48,921**	**100%**

Source: PricewaterhouseCoopers based on Dun & Bradstreet, Million Dollar Database

Figure 5-7
Employment within Five Kilometres of the Benchmark Airports

	Peidmont Airport		Rickenbacker Airport		Alliance Airport	
Construction	1,911	5%	2,092	7%	4,018	8%
Manufacturing	9,009	22%	6,674	23%	13,600	28%
Food	*626*	*2%*	*176*	*1%*	*1,616*	*3%*
Apparel/Textiles	*2,351*	*6%*	*500*	*2%*	*35*	*0%*
Building Products	*1,226*	*3%*	*745*	*3%*	*850*	*2%*
Chemical/Pharmaceuticals	*2,361*	*6%*	-	*0%*	*158*	*0%*
Plastics	*303*	*1%*	*669*	*2%*	*628*	*1%*
Machinery	*301*	*1%*	*873*	*3%*	*222*	*0%*
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Figure 5-8
Comparison of Airport Market Parameters

	HIA	Rickenbacker	Alliance	Piedmont Triad
Location	Hamilton, Ontario	Columbus, Ohio	Fort Worth, Texas	Greensboro, Winston-Salem, High Point Triangle, North Carolina
Metropolitan Area Population (Millions)(1	Hamilton CMA - 0.7 Golden Horseshoe - 7.4	Columbus MSA - 1.8	Dallas-Fort Worth MSA - 5.2	MSA - 1.3 Within 90 min drive - 4.5
First Year of Development	N/A	1992	1989	1982
Nearest Major Airport	Toronto Pearson	Cincinnati	Dallas-Fort Worth	Raleigh-Durham
Runway Size (feet)	10,000	12,000 (Parallel)	9,600 amd 8,200 13,000 (Planned)	10,000
Cargo Volume (Metric Tons)(2	91,000	96,000	135,000	80,000
Passenger Volume(3	600,000 (2001) 1,000,000 (Est. for 2002)	Occasional Charter (Passenger terminal planned)	No Scheduled Passenger Service	1,400,000
Employment Land (Acres)(4	To Be Determined	7,000 (2,000 future additional proposed)	10,000	2,000
Occupied Employment Land(4	0	3,500	3,000	Not Available
Employment Airport/Related Industrial Lands(5	1,200	11,000	20,000	7,000
Employment within 5 KM(6	Majority of Lands are Rural	29,000	49,000	40,000
Industrial/Commercial Space (Square Feet)(4	Limited to Airport	23,000,000	22,000,000	6,000,000

1) Hamilton CMA and Golden Horseshoe based on 2001 Census of Canada. Data for US Cities is for Metropolitan Statistical Area from 2000 US Census

2) Cargo data for HIA for 2000 provided by TradePort. Data for US Cities are for 2000 from 2001 Annual Reports

3) HIA Volume for 2001 based on data provided by Hamilton Airport Authority. Data for US Cities are for 2000 from 2001 Annual Reports

4) Based on interviews with US airport authorities and economic development officials. Note: Includes business parks in proximity to the airport. Excludes airport lands

5) HIA Employment based on Hazra Consulting, Economic Impact Review, May 2002. US data based on discussions with airport authorities and economic development officials

6) Based on Dun & Bradstreet business data base. Five kilometre rings defined by PricewaterhouseCoopers LLP

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6) Based on Dun & Bradstreet business data base. Five kilometre rings defined by PricewaterhouseCoopers LLP

6.0 HIA REPRESENTS AN IMMEDIATE INVESTMENT OPPORTUNITY

The Hamilton International Airport ("HIA") has begun a process of change to reinvent its core business from a local airport to a vibrant international passenger and cargo hub, acting as an anchor for a new regional industrial development that will springboard the Airport Industrial Park and surrounding lands.

In interviews with airport authorities and companies located in the surrounding business parks, the survey respondents where very pointed with regards to the competitive position of the HIA facilities, with many comments directed at the advantage of having no flight curfew to limit the landing options. Several logistics companies commented that the 24-hour operation of HIA is a distinct competitive advantage, particularly in light of the business competition in the airfreight and integrator market with Pearson airport.

The further advantage that HIA has is the ability to facilitate growth of the airport industrial infrastructure in a way that supports the needs of targeted space users. This tends to compliment Pearson's development plan, which has been primarily focussed on passenger traffic, and much less on air cargo and other industrial space users.

A vision statement and business plan are required to support planning, development and investment process for airport industrial development to take strategic advantage of the Hamilton Airport and the surrounding development potential.

6.1 Infrastructure Investment is Key to Attracting Development

The real estate development adjacent to the benchmarked airports, i.e. Alliance Airport, Ft Worth, Texas; Rickenbacker Airport, Columbus, Ohio and Piedmont Triad Airport, Greensboro/Winston-Salem/Highpoint, North Carolina demonstrate the need to commit financial and physical resources to harness the development potential and to attract investment and job creation.

The leadership that the local and state authorities have shown in dealing with the three benchmark airports illustrates that the political and economic influence of the local government bodies is required to validate the new development and that assistance and support from local municipal staff was essential to bring the undeveloped lands to a state that would allow development to occur.

The information from interviews with officials of the benchmark airports demonstrates that the initial demand for industrial development at these airports was fuelled by the creation of infrastructure necessary to allow development of industrial and commercial buildings. The key to developing industrial land at all three benchmark airports was the financial commitment of the local municipalities to invest in the required infrastructure to facilitate the development of the land adjacent to the airports.

The financial commitment was substantial, ranging from $30 to $200 million over a ten to fifteen year period. The following summarizes the major public infrastructure investment at the three benchmarked airport developments:

Alliance

- State and local funding was made available to cover the cost of a cloverleaf and interstate spur to facilitate direct expressway access to the airport.
- State and local authorities also provided the funding for trunk services, including sewer, water and electric.
- The County constructed a ring road to facilitate access to the airport and development lands.
- The Federal Government constructed the control tower and electronic infrastructure at the airport.
- The Federal Government also subsidized the recruiting and training of control tower staff.
- The City of Fort Worth expropriated strategic development parcels that could not be assembled through private market transactions.

Rickenbacker

- The Federal Government retrofitted the control tower and subsidized required recruitment and control tower staffing, at the former military base.
- The Federal Government upgraded water and sewer services on the site.
- The Federal Government provided a grant for the extension of a runway.

Piedmont Triad

- The Federal Government provided a grant for a runway extension.
- The Federal Government constructed a control tower and subsidized required recruitment and control tower staffing.
- The State of North Carolina expanded a highway from 4 to 6 lanes.
- The local governments organized surrounding lands into municipal boundaries and facilitated private land assembly and zoning.

It is also important to recognize that in all these cases, the State and local governments provided tax abatements in various forms to companies locating within the development areas.

Although this practice influenced corporate location decisions on a broader scale, it is questionable if this practice actually benefits the national or state economies in that many of these firms would still be attracted to the same types of locations in the absence of subsidies. In other words, the corporate composition around each of the benchmark areas may not be significantly different if none of the host communities or states provided any tax relief.

The companies that would eventually locate near airports, in the event that such buildings were available, based their location decision primarily on three key drivers:

- Location;
- Work Force Availability; and
- Price of Local Inputs

6.2 The Right Location is Also Essential

Each of the airport industrial developments was created after the airport location and need were established. The airports were all created from conversion of military airbases or built from green field sites. While the land had not been developed for industrial use, it had been available for development prior to the airport being converted or developed for logistics and or passenger use.

The Alliance Airport was built on a green field site provided by the landowners of the surrounding property, in conjunction with the City of Fort Worth. The other two airports were previously military airbases and the conversion to private use created an opportunity to develop the adjacent lands.

In addition to the obvious locational attributes of each of the benchmark airports, are the substantial advantages derived from the multi-modal transportation network. The ability to connect to many transportation modes, i.e. road, rail, sea or air, provides significant competitive advantage over other areas, such as traditional airport locations or in traditional suburban business parks.

Each of the airport industrial developments are able to provide quick, convenient access to major highways, freeways and rail facilities. This provides industrial space users with ready access to transportation and ensures quick to market timing, support for "just in time" inventory management.

The ability to move goods at lower cost from a major distribution terminal near an airfreight facility, enables many companies to achieve greater productivity, better cost control, service capability and/or customer support. Interviews conducted with companies located in airport industrial parks, demonstrated that there were many different locational decision drivers for their corporate real estate, among the primary ones were:

- Airport proximity;
- Transportation network;
- Cost of land;
- Tax incentives;
- Image of industrial park; and,
- Availability of labour.

6.3 The New Economy Requires a Skilled Work Force

The predominant character of the businesses locating at or near airports is logistics or distribution related, which raises the need for a dependable yet affordable work force to support the employment requirements of these businesses. The early stages of the benchmark airport development found the work force requirements were met

by attracting a labour pool from a wider catchment area than was expected, as these airport industrial parks were all in more remote locations than the hub passenger airports they were meant to supplement.

In the case of Alliance real estate development, workers were attracted from as far away as 80 miles, until sufficient job base had been created that satellite communities in the vicinity could be expanded to serve the greater number of employees. Alliance currently has over 22 million square feet developed, with an estimated direct (on airport) and indirect (spin off employment in the region) workforce of 62,000 people, according to an Economic and Employment Survey dated January 31, 2002.

Rickenbacker airport industrial development was able to attract employment from existing surrounding communities initially and the ten years of sustained growth has provided demand for direct and indirect employment of 11,000 jobs, per the Economic Impact Report, dated June, 2001. The current 23 million square feet of industrial development has fuelled the growth of residential demand in the surrounding greater Columbus, Ohio area.

Piedmont Triad airport industrial development has been more modest and growth of more recent vintage, compared to Alliance and Rickenbacker airport industrial parks. The initial planning for the industrial park development was begun by several municipalities, who put forward recommendations on park requirements and then proposed annexation of areas to be developed. The annexation of the lands facilitated that issuance of debt that was used to provide the service and road infrastructure for the eventual airport industrial parks. The initial employment for the Piedmont Triad industrial park was supported by the existing worker base in the three-city area and surrounding town and rural area. The loss of primary employment from three major industries: textiles, furniture manufacturing and tobacco, provided available worker pool to support new industries as they located in the Piedmont Triad.
Piedmont industrial development in the immediate vicinity of the airport comprises over 6 million square feet and over of 3,000 jobs in mostly in the logistics, call centre or e-commerce sectors. These are in addition to the 4,000 employees on the airport site. As noted above within five kilometres of the airport are some 40,000 employees. The focus on these sectors has been supported by area universities and colleges, the largest of which is Wake Forest University and Medical School. These education resources provided a well-trained and knowledgeable information and service sector workforce.

6.4 Price of Local Inputs

The benchmark airport industrial developments have demonstrated that little or no premium will be paid by space users, solely on the basis of location adjacent to the airport, unless some very special considerations apply, such as airside access, direct and frequent shipping requirements where time to market or shipping is major service criteria.

The experience of Alliance airport illustrates best the expectation that should be built into the Business Plan for HIA. Alliance made a commitment for infrastructure and amenities that rivalled the best business parks in the Greater Dallas/Fort Worth area. The price per acre of land that the industrial development could command however, was more influenced by the prevailing rental rates for comparable space in competitive developments and that no premium was paid for location adjacent to airport until the industrial development had matured. The market commanded a premium on the basis of the quality of the real estate development and amenities, not on the airport location itself.

Alliance also illustrates that employers look for other cost containment measures that enhance their profitability, like subsidies and tax abatements, to adjust for the "pioneering" aspect of the development that many of the first employers feel they have to endure, until the location is more established.

While wage rates have been a major factor in location decisions, taxes and other locational cost issues will also factor into decisions for logistics and high cube warehousing businesses.

Conclusions for HIA

Airport industrial development can assist in creating new jobs and providing economic stimulus to the region. The focus by Piedmont Triad in attracting key industries that rely on high education attainment suggests that Hamilton can similarly base its development strategy on the foundation of area universities and colleges, as well as trained and well educated workforce.

The existence of McMaster University can assist in attracting technology, bio-med, and other high value firms to the airport in the same way that Wake Forest University did in the Piedmont Triad.

The locational attributes of HIA are also similar to Piedmont Triad in terms of fragmented land ownership and lack of applicable existing planning policies. As a result, municipal leadership is required to ensure adequate planning policies, zoning, service infrastructure and land consolidation.

6.5 Rationalization of Land Holdings is Required to Support Long Term Growth

The key to development of the industrial lands around the benchmarked airports was the commitment to develop the land on a joint or coordinated basis. While the circumstances varied in each case, the common element was the role that local government took in facilitating the availability of land to be developed.

Alliance

In the case of Alliance, most of the lands were controlled by two major landowners. They joined forces with the City of Fort Worth to propose the airport and to develop the surrounding lands. The City of Fort Worth coordinated the planning and zoning process to ensure that all

landowners in the airport area had ability to compete fairly in the development process.

The employment lands around Alliance Airport have been master planned through the cooperation of the municipal officials of three local jurisdictions, and the private sector landowners.

The industrial lands were created from Ross Perot Jr's 15,000 acres and an adjacent 2,000 acres owned by Trammell Crowe. These lands, with the private sector resources, provided the rationalization of land holdings to support the long-term industrial development.

Rickenbacker

Rickenbacker's airport industrial development was a mixed model with the airport authority active in the planning process, in the hope that the subsequent industrial space demand would develop new customers for the cargo airport. The airport authority worked in conjunction with local landowners to assemble over 3,000 acres of land in several independent sites totalling 11 million square feet, around the airport that would be developed over a period of 20 years.

Piedmont Triad

The Piedmont airport industrial development has been facilitated by the degree of cooperation between municipal and state officials together with private landowners who worked to create the current business park of 2,000 acres with 6 million square feet of employment area, supporting over 3,000 direct and indirect jobs.

Local municipalities annexed the development lands in order to facilitate the required services. The individual municipalities provided the required services, supported by revenue bonds to finance the cost of service infrastructure.

Conclusions for HIA

The commitment to proceed with the airport industrial development must be validated by all the landowners in order for the potential benefits to be realized. If the local levels of government are not able to bring the landowners together, it may be necessary for the City of Hamilton to evaluate alternative means to ensure that the airport industrial development potential is realized.

Long term development needs must be identified and service and transportation infrastructure provided to ensure that the development potential could be realized.

6.6 Planning Must Recognize both Long and Short Term Opportunities

Municipal officials in each of the benchmark communities recognized that appropriate zoning was critical to facilitate industrial land development and job creation.

Alliance

Planning officials from the municipalities that encompass Alliance airport joined with the landowners in the creation of land use plans and development master plans that would take into account short term and long term demand and provide the capability to meet the needs of companies seeking to relocate to the Alliance airport industrial park.

Rickenbacker

The airport authority and local municipal officials worked together to find a common vision of the uses that would both enhance airport freight and landing rights revenue, and act as an economic engine for the surrounding region.

Piedmont Triad

Initial planning for the airport occurred in the late 1970's, including the annexation of lands required for airport and surrounding industrial development. It is only in the last decade that the majority of development has occurred, and in a form that could not have been envisioned during initial planning. However, the ability of the local authorities to consolidate the land at an early point in the process laid the groundwork for future development when favourable economic conditions returned.

Conclusions for HIA

Principles should be articulated into the Official Plan that provide protection for the future operating capacity of the Hamilton Airport.

In particular, land use designations and zoning near the airport should restrict uses that are incompatible or that may constrain the 24/7 operating capability in the future.

Furthermore, Official Plan and zoning should be geared towards anticipated future industrial users, while allowing flexibility to respond to emerging industrial market trends.

6.7 Commitment is Needed from All Levels of Government

The airport operating model is quite different for each of the benchmark airports, due to the different legal and tax systems. The common element in each of the airport business communities is the unequivocal commitment of the various levels of government, from the local to the federal government.

The support from all levels of government in the United States benchmarks provides some insight into the catalyst that was provided by federal, state and local governments.

The US Transportation Administration and the Federal Aviation Administration have adopted policies that have facilitated the growth of cargo airports and the resulting industrial real estate developments that have grown synergistically with the airport cargo volume. Each of the

benchmark airports assembled a coalition of interested stakeholders, with the active participation of the local governments who had the most benefit to reap from the new industrial development.

Alliance

The City of Fort Worth developed a strong presence with the state and federal government bodies to ensure that their jurisdiction was an active contender for the award of an airport license, which would facilitate the development of the industrial real estate adjacent to the airport. Fort Worth and surrounding towns formed a support team to improve the chance of success for the Alliance airport proposal, during the time when the FAA was seeking another airport site in the Dallas/Fort Worth Metroplex.

As with each of the other benchmarked airports, the FAA provided substantial funds ranging form $20 million to $62 million in subsidies and grants to the airport authorities to fund the infrastructure and services required. In addition, the State of Texas provided grants and funding for roads, tax rebates, tax exemptions and relocation allowances that added to the financial aid that the airport industrial parks received.

Rickenbacker

State and local officials worked with federal level of government to arrange the orderly and seamless transfer of the airport from military to civilian jurisdiction. The process included several years of planning, to enable the realignment of municipal boundaries, which ensured services would be provided in a timely manner, in keeping with market demand.

Nothing was overlooked in the Rickenbacker transition. There were many levels of government involvement, all of which needed to be in agreement for the transfer and subsequent development to take place.

The State government also provided funding in the form of infrastructure capital, tax exemptions and other funds recognizing the economic value of the project.

Piedmont Triad

Piedmont brought together seven individual government bodies to facilitate the creation of the planned industrial development zone. The land area was fractured so there needed to be some realignment and annexation in order to proceed with servicing and obtain commitment to the long term development of the airport and surrounding lands.

Conclusion for HIA

Piedmont Triad best represents the degree of commitment that HIA may find necessary in order to achieve the development of the airport industrial area. The local residents and businesses, as well as the other nearby municipalities will have to be committed first, before moving on to provincial and federal levels of government.

The U.S. example may not be directly applicable to Canada due to different funding mechanisms, more limited municipal powers in Canada and other inter jurisdictional differences. However, the key is that there is recognition by both state and federal agencies that the benefits of the airport extend well beyond the local municipalities. In all three cases, the airport developments resulted in thousands of jobs, most of which were new to both the local area as well as the states. From the perspective of the Federal Government, the airport developments supported the Foreign Trade Zone legislation and ultimately bolstered US exports.

Both the Provincial and Federal Governments will benefit from the expansion of the airport. As such there should be participation by both upper levels of government at an early stage to ensure that:

- Adequate infrastructure is available;
- Adequate skills and labour force are available for new companies locating in proximity to the airport;
- The airport can continue to maintain its operational advantages; and,
- The airport is effectively marketed regionally, nationally and internationally.

6.8 The Vision Must Be Shared with the Community

The airport has become a regional economic generator that can be developed to benefit all the stakeholders. There will need to be a local and regional commitment in order for the airport industrial development to be realized. There will be a substantial financial and manpower requirement that will need support from the entire community. The long term requirements to maintain the core competitive advantage afforded by the 7/24 operating standard, will mean that future development of the airport area will be counter to the interests of those landowners who have assembled parcels of land for future residential development. The community must be involved in order to create a broad base of support, in order to work through the creation of an airport industrial development that will meet the long-term interest of the community at large.

The examples provided by the benchmark airports give ample justification to pursue a strategy and business plan for an airport industrial development that creates a base for new development to facilitate job and economic growth and harnesses the geographic position of Hamilton in the Golden Horseshoe and South-western Ontario.

HIA has the infrastructure to provide a multi-modal transportation network:

- Connection to the St Lawrence Seaway and its potential upgrades;
- An expanding road network, which will facilitate access to the airport and allow a repositioning of the airport area as a desirable location; and
- Available rail connections, subject to sufficient demand to validate development.

The land area surrounding the airport should facilitate the development of a quality, corporate style development, and provides critical mass that will draw the interest of logistics and other companies.

6.9 Airport Communities Are International

All three benchmark airports have significant representation by either foreign companies or domestic companies that rely on significant import and export activities. This is largely attributable to the Foreign Trade Zones which have been designated within the airport business communities.

Foreign Trade Zones (FTZs) offer a competitive advantage in serving the NAFTA market by permitting goods to be brought into the U.S. without the prepayment of taxes or duties. For those goods that are re-exported, duties or taxes never have to be paid. Merchandise entering the domestic market has applicable duties and taxes applied at point. FTZs also enable the storage and value-added manipulation of goods to take place in a tax and duty free environment, which frees up excessive amounts of capital.

At Rickenbacker, for example, Dorcy International a rapidly growing manufacturer of flashlights and other lighting products located in FTZ 138. Dorcy imports the bulk of its components from overseas. The foreign trade benefits available to this company, including deferred, reduced or eliminated duties, have directly contributed to the company's sales growth since locating at Rickenbacker.

The Piedmont Triad boasts 160 foreign firms, including 30 from the United Kingdom, 24 from Germany, 19 from Japan, 17 from Canada and 12 from Italy.

In Canada, the newly adopted Export Distribution Centre (EDC) Program offers many of the same benefits as the US Foreign Trade Zone legislation:

- Canada can be used as a base for distribution within the NAFTA economy;
- No outlay duties and taxes up front improves overall cash flow;
- Increased productivity and competitiveness by avoiding inverted global tariffs; and
- Quota restrictions can be avoided until goods actually enter the Canadian market.

The most significant difference is that the EDC program is not geographically based so that a company can apply for EDC status, without being in a designated area, such as is the case with FTZ's in the United States. The draw back for HIA is that the program does not give it a strategic advantage over other industrial areas in terms of offering export incentives. On the other hand, the program may enhance the attractiveness of all areas, including Hamilton, with superior access to international transportation networks.

Based on our discussions with other airports and industry exports, there was a strong sentiment that Asian firms could be an important source of airport and FTZ tenants in

the future. As Asian producers continue to increase their expansion into North American Markets, it is expected that Asian countries will far outpace North America for air cargo growth. As a result, this may represent an opportunity for HIA.

7.0 HIA CAN BE A MAGNET FOR INDUSTRIES STRATEGIC TO SOUTHERN ONTARIO

As part of our mandate, PricewaterhouseCoopers has identified a number of employment sectors that demonstrate strong future growth potential and reflect the type of companies that would be suitable for the lands in the vicinity of the HIA.

The identification of appropriate business targets is based on:

- Major investment attraction initiatives already underway by senior levels of government;
- The conclusions of the City's *Economic Development Strategy: Hamilton's Clusters of Innovation* (May 2002)
- Recent investment trends in Ontario and neighbouring communities (as identified in Section 3);
- Private sector forecasts for individual sectors, and
- Interviews with a wide variety of business executives both locally and the US, as well as industry association representatives.

7.1 Federal Investment Attraction Strategies

The Department of Foreign Affairs & International Trade, and Industry Canada are the two Federal agencies responsible for business growth and foreign direct investment in Canada. **Team Canada**, a partnership of 1,800 representatives from industry and government is the entity responsible for expanding Canada's presence within selected industry sectors.

Since the program was established in 1994, six trade missions have been organized to Asia, Europe and Latin America. The mandate of the program is to advance Canada's trade and investment interests abroad, and to raise Canada's profile as a global centre of innovation for a wide variety of products and services.

Team Canada has identified the following industry sectors as part of its formal mandate:

- Aerospace & Defence
- Agriculture, Food and Beverages
- Automotive
- Bio Industries
- Building Products
- Electric Power Equipment & Service
- Environmental Industries
- Health Industries
- Information and Communication Technologies
- Plastics
- Service Industries and Capital Projects

7.2 Provincial Investment Attraction Strategies

The Ministry of Enterprise, Opportunity and Innovation (MEOI) is responsible for economic development marketing and investment attraction in the Province of

Ontario. MEOI promotes Ontario in numerous forums including through the Ontario Investment Service, industry trade shows, direct marketing, corporate lead generation and targeted advertising campaigns. MEOI is currently promoting the following target sectors for investment attraction:

- Aerospace
- Automotive
- Biomedical
- Call Centres
- Chemicals
- Environment
- Forestry
- Infotech & Communications
- Machinery
- Mining
- Plastics

7.3 Growth Sectors

Understanding the growth potential of Canada's leading economic sectors is a fundamental component of investment attraction.

Each spring the Bank of Montreal provides five-year sector-based forecasts. Figure 6-1 below highlights those sectors that are poised to grow rates near or above the average annual growth projected for the entire economy (3.4%).

The circled sectors indicate those identified by the City of Hamilton as strategic fits given the presence of existing businesses and labour skill sets.

Figure 7-1
Projected Average Annual Change in Real GDP by Sector: 2002-2006

High Growth (Above 4%)	%	Medium Growth (2.7 –3.9%)	%
Communication & Info. Services	9.1	Electrical Equip & Appliances	3.9
Professional & Technical Services	5.8	Non-electrical Machinery	3.9
Plastics	5.3	Transportation & Warehousing	3.8
Electronic Products	5.0	Finance & Insurance	3.8
Furniture	4.9	Construction	3.7
Motor Vehicle Parts	4.5	Retail Trade	3.6
Wholesale Trade	4.4	Fabricated Metals	3.5
Admin & Waste Mgmt Services	4.3	Wood	3.5
Non-metallic products	4.3	Primary Metals	3.4
Aerospace Products	4.2	Art Entertainment & Recreation	3.3
Cultural Services	4.2	Accommodations & Rood Ser.	3.1
		Misc. Manufacturing	3.0
		Agriculture	2.9
		Real Estate, Rental & Leasing	2.8
		Personal Service	2.7

Source: Bank of Montreal, *Sectoral Forecasts*, May 2002

7.4 Local Investment Attraction Strategies

In May 2002 the City of Hamilton released its new *Economic Development Strategy*. The strategy provides one of the basic building blocks that feed into an integrated 20-year growth management strategy known as "GRIDS".

The Economic Development Strategy focuses on the pursuit of six industrial clusters as a ways and means of focusing limited marketing resources to enhance the economic vitality of the City. The identified clusters include:

Traditional

- Industrial Manufacturing
- Agri-business

Emerging

- Aerotropolis
- Health & Biotechnology
- Information and Communication Technology
- Film

Hamilton's Economic Development Strategy is the product of significant research involving direct input from local focus groups, stakeholders and industry organizations. The industry clusters identified in the strategy have been fully supported by Council.

The City fully appreciates that these clusters are tightly intertwined with one another, each serving to reinforce and propel the success of the others. The opportunity to integrate various aspects of these clusters is the basis of the following section of the report. It provides the rationale and locational factors will that motivate new business formation in the vicinity of the airport.

7.5 Recommended Target Sectors for HIA

As noted previously, the development of the "aerotropolis" or airport community has been identified by the City as: "the number one strategic priority for economic development in Hamilton". The City has also indicated that, "the airport will be the future for employment and assessment growth as well as distribution development.

This section of the report identifies recommended primary targets industries for the airport lands on and adjacent to the Hamilton International Airport. Our recommendations are based on a review of the target sectors identified by the City of Hamilton and other Golden Horseshoe Municipalities, businesses attracted to the benchmarked communities and the investment targets identified by the Province of Ontario and the Federal Government.

The recommended target sectors are:

- Logistics;
- Aviation;
- Manufacturing;
- Information and Communications Technology; and,
- Biomedical.

A description of each sector together with its rationale as a target is discussed below. Figure 7-2 lists the targets and sub-groupings within each sector. The third column of this table provides links to web sites listing the major companies in each sector. Figure 7-3 provides a summary of the infrastructure and locational requirements for businesses in the target sectors. Figure 7-4 summarizes the typical site specific locational requirements for each sector

7.5.1 Logistics

Logistics is the process of planning, implementing and controlling the flow and storage of goods services and related information from the point of origin to the point of consumption. It is both an "in-house" activity in manufacturing and distribution industries as well as an emerging industry where specialized firms offer services on a contract basis.

The Canadian Professional Logistics Institute include the following activities and functions in their definition of the logistics and supply chain management:

- Purchasing
- Production scheduling and inventory control (demand forecasting, inventory management, production planning, & scheduling)
- Distribution (warehousing, materials handling, packaging, shipping and loading, storage, order processing, picking and customer service)
- Transportation and traffic (rates and dispatching)
- Customs clearance (customs brokerage)
- International freight forwarding (international shipping of cargo).

Increasingly businesses are outsourcing their entire supply chain management to third party logistics providers (3PLs) to take advantage of their skills in supply chain optimization.

The logistics industry is an increasingly important tool to maintain Ontario's competitiveness in the global marketplace. Efficient logistics practices, whether they are conducted in-house or by 3PLs, provide the following benefits to business in the region:

- Shortened time requirements for goods to get from the supplier to the customer, and
- Reduced inventories leading to overall cost savings.

Figure 7-2
Hamilton I nternational Airport Recommended Target Sectors

Cluster	Existing Base	Targets & Anchors Sectors	Company Resource Locator
Logistics	FedEx UPS Purolator	Airfreight Forwards Couriers	CIFFA www.ciffa.com
Aviation	Kelowna Flightcraft CABL AVIATION JETPORT PENINSULAIR	Maintenance Repair & Overhaul Aircraft Parts Flight Training	CAMC www.camc.ca AIAC www.aiac.ca www.ontaero.org
Manufacturing		Automotive Parts Advanced Machinery Plastics	APMA www.apma.ca www.the-alliance.com www.cpia.ca

Figure 7-2
Hamilton International Airport Recommended Target Sectors
(Continued)

Cluster	Existing Base	Targets & Anchors Sectors	Company Resource Locator
ITC		Hardware Software IT Consulting	ITAC www.itac.ca
Biomedical		Biotech Pharma Clinical Laboratories	BIOTECH www.biotech.ca R&D www.canadapharm.org BioSpace www.biospace.com

Based on our discussions with various industry associations and supply chain specialists, the following products are shipped by air cargo:

- **Time-sensitive Courier Documents & Parcels**
- **Perishables** (in-bound fruits, seafood, flowers)
- **High-value Components** (electronic, selected automotive parts, system-critical replacement parts);
- **Pharmaceuticals** (drugs, vaccines, test samples, specimens, cultures, etc.);
- **Time Sensitive Consumer Products** (newspapers, magazines, apparel, etc.)
- **e-fulfilment**

While airport locations are particularly desirable for freight-forwarders and couriers, an airport in and of itself is not a defining locational parameter required to support typical logistics or distribution functions. Proximity to highway networks, and speed and access to customers on the ground are equally, if not more, important because these factors often shape a companies reputation in the eyes of their customers.

Planned highway improvements in the vicinity of HIA (i.e. the Highway 6 extension, the Mid-Peninsula Corridor, and the Red Hill Creek Expressway) will dramatically improve the ability of companies in and around the airport to better penetrate nearby markets, such as GTA, the Niagara Peninsula, southwestern Ontario and the US.

7.5.2 Aviation Cluster

The availability of large tracts of vacant land immediately adjacent to HIA provides an excellent opportunity for the City of Hamilton to capitalize on growth opportunities in several areas of the aviation and aerospace cluster. Based on our industry consultations we have identified three components of the aviation cluster that could be integrated into the Aerotropolis concept.

Aircraft Part Manufacturing

The aircraft parts manufacturing industry is a truly global and high-tech industry. Design and production of aircraft and parts normally takes place within large complex networks of international suppliers and manufacturers across large geographic expanses. Unlike the automotive industry, which is highly concentrated in tight geographic clusters, the aircraft industry is spatially dispersed with parts being shipped over greater distances.

While the market for new aircraft tends to be highly cyclical, the parts segment of the industry is considerably more stable because of the on-going need for aftermarket

components, mandated safety checks, and modernization programs.

The aerospace sector in Canada experienced record sales levels in 2001 surpassing the $20B threshold in sales. Although Quebec has the largest aerospace industry concentration, Ontario still represents about 30% of total sales and 30% of total employment in Canada.

There is strong evidence to suggest that many regions have successfully leveraged their airport facilities as magnets for attracting aircraft parts manufactures. Summerside, PEI for example has aggressively marketed its airport (a former Canadian Armed Forces base) to aerospace and aircraft parts manufacturers. Slemon Park Corporation is a private sector company focused on attracting aerospace investment from around the world to Summerside. In co-operation with Federal and Provincial governments, the company has established the Summerside Aerospace Centre, which offers companies a 100% rebate on provincial sales tax, income tax and property tax until 2012. Atlantic Turbines International, AlliedSignal Aerospace, Testori Americas Corporation, Wiebel Aerospace are among some of the leading companies that have chosen to locate in Summerside.

Discussions with the Ontario Aerospace Council (OAC) indicate that long-term prospects for the Province's aerospace industry remain favourable despite the cyclical downturn presently affecting the industry globally.

The strongest growth opportunities in Ontario reside at the **Tier-Two** (system integration) level, which includes companies engaged in the delivery of entire subsystems to OEMs such as, avionics, landing gear, engines, etc.

As a cautionary note our consultations with the OAC revealed that a location adjacent to an airport is not a compelling enough reason in and of itself to site a new aircraft parts manufacturing plant. Locations need to be supported by well-balanced labour market (both skilled and unskilled workers); transportation costs, labour costs and well structured government incentives.

Maintenance Repair and Overhaul

Aircraft repair maintenance overhaul (MRO) is considered to be the most resilient sub-sector of the aviation cluster.

Based on discussions with the OAC, HIA is well positioned to take advantage of emerging MRO opportunities for four key reasons:

- the airport's existing infrastructure (10,000 foot runway);
- 24/7 flight and customers operations;
- lower air traffic activity than Pearson International; and
- lower landing fees than Pearson International.

One of the key trends in the MRO industry is the decentralization of activity away from crowded "hub"

airports in favour of smaller specialty facilities. Recent examples of this include: Alliance Airport (American Airlines), Duluth Airport (Northwest Airlines), and Indianapolis (United Airlines).

Air Canada currently operates three maintenance facilities across the country (Vancouver, Winnipeg, and Montreal). In addition to serving their own aircraft, the company has also secured major contracts with other international airline carriers. The airline has recently announced its intentions to spin-off its Technical Services unit into a freestanding business unit.

Access to qualified mechanics and engineers is a major issue currently confronting the airline industry. The number of qualified graduates is not keeping pace with retirements. As such, the industry is anticipating a major skills shortage in the near to medium term. It has been suggested that if HIA wishes to establish a strong foothold in this segment of the industry, on-site training facilities will need to be established. Emphasis on **"aircraft specific" maintenance training** was also cited as one of the key opportunities that could set HIA apart from the field, leading to a greater number of future opportunities.

Flight Training Centres

Given structural changes taking place in the flight training industry it is evident that HIA could position itself as a leading-edge centre for flight training in the country. A study prepared in 2001 by ATAC addressed the human resources concerns for commercial aviation in Canada. The report concluded that the industry would likely experience a "skills" shortage for pilots.

New generations of technologically advanced aircraft are placing growing demands on pilots for skills training and professional upgrading. Going forward it is clear that the industry will require professionals who can fully master the potential of these new technologies. Flight training centres across the country will be required to accelerate and intensify their training programmes to ensure that more sophisticated training devices and more modern fleets are introduced into their course offerings.

7.5.3 Manufacturing Cluster

Automotive Parts Manufacturing

The Ontario Investment Service (OIS) has been actively promoting Ontario as *"North America's Automotive Powerhouse"*. Ontario is the second largest vehicle-producing region in North America, and is on the verge of surpassing Michigan in terms of total vehicle output. Recent investments and product line expansion plans at several Ontario assembly plants including Toyota in Cambridge and Honda in Alliston, provide a strong signal that the global automotive industry understands the competitive advantages of operating manufacturing facilities in Ontario.

In addition to its impressive roster of automotive assemblers, the Ontario automotive industry is also

comprised of a rich and dynamic collection of auto parts companies. The Canadian Automotive Parts Manufacturing Association (APMA) estimates that there are approximately 550 auto parts companies located in southern Ontario, employ a total of 100,000 highly skilled and educated workers.

The Ontario automotive parts industry is made up of three 3 types of enterprises:

- Captive parts producers – facilities owned directly by vehicle producers;
- Independent Canadian parts producers; and
- Independent foreign parts producers

Independent Canadian parts producers are responsible for nearly 50% of parts shipments. The Big Three (GM, DC and Ford) are the largest customers. While Japanese producers in Ontario comprise nearly 25% of the market, they account for only 8% of all sales for Canadian automotive parts producers.

The APMA has identified four growth opportunities for Canadian parts manufacturers, including:

1. **Extreme Fuel Efficiency Initiatives:** significant opportunities exist within the industry for companies with leading edge solutions in the area of power trains, electronic components, and lighter weight materials.
2. **Emerging Technologies:** hydro forming, fuel cells and magnesium parts.
3. **Safety:** Opportunities exist for companies pursuing R&D activities in the area of Intelligent Vehicle-Highway Systems (IVHS)
4. **Electronic Components:** the value of electronic components in the light vehicle is expected to increase by 75% between 1996 and 2005. It is also estimated that by 2005 electronics will account for approximately 40% of an automobile's cost.

The Hamilton economy, like most others in southern Ontario, is heavily influenced by the cyclical nature of the automotive sector.

The automotive industry is heavily reliant upon just-in-time delivery practices. This, perhaps more than any other reason, has stimulated a strong geographic concentration of auto-related parts firm in southern Ontario around key OEM manufacturers located in Oshawa, Oakville, Windsor, Alliston and Cambridge.
One of the key trends in the industry over the past two decades has been the increased level of investment in non-traditional manufacturing regions, such as: South Carolina, Tennessee, Kentucky and Alabama. Lucrative incentive packages and favourable labour conditions (i.e. "right to work" laws) have attracted billions of worth of investments in recent years.

As the North American automotive industry becomes increasingly dispersed geographically, the most successful firms will look for new ways to maintain their competitive advantage through improvements in their supply chain systems.

Although automotive parts manufacturers traditionally relied upon truck shipments, there is growing evidence to suggest that they are embracing air-cargo to serve distant customers. At present time, the movement of automotive parts by air is largely limited to high-value added electronic components. As the market for these types of components expands, it is anticipated that airfreight companies will play an ever-increasing role in the automotive supply chain.

Automotive companies also rely upon the airports to ensure that the can receive system critical parts deliveries. The Peterborough Airport, for example, has become an integral part of GM's operation in Oshawa ensuring that parts are available in emergency situations.
At present time there is little evidence to suggest that airports are decisive factors influencing the site selection process for new automotive parts manufacturing facilities. Having said this however, it is important to recognize the role that airports play in facilitating the competitiveness of auto-related business from an overall operational perspective.

Discussions with industry representatives revealed that despite highly sophisticated electronic networking capabilities, automotive companies rely heavily on face-to-face interaction, especially for project managers, designers and engineers. Because of the increasingly global nature of the business it has become increasingly important to be near airports that offer service to a wide variety of manufacturing-oriented destinations.

While Hamilton should continue to strengthen its role within automotive manufacturing cluster, there is no evidence to suggest that lands around the airport provide a competitive advantage above and beyond those located in other parts of the municipality. To a larger extent, the long-term opportunity to attract automotive parts companies to lands around the airport will be dictated by the planned road and highway improvements in the vicinity.

Plastics Manufacturing

Ontario is the centre of the Canadian plastics industry and is home to more than 2,100 plastics companies. The Province trails only California and Ohio in plastics manufacturing output. The success of this industry has been attributed to the resiliency of the automotive sector as well as a cost-competitive manufacturing environment. The plastics industry is divided into five primary market segments:

- Packaging,
- Construction products,
- Automotive components;
- Furniture and

- Electrical/Electronics.

The City of Hamilton has recognized that plastics, along side metal fabrication, will remain one of the City's leading sub-sectors in the manufacturing cluster.

In general, the airport does not provide plastics producers any tangible competitive advantage from a day-to-day operational perspective because the vast majority of plastics shipments via truck and rail. Future highway improvement in the vicinity however will likely create excellent opportunities for manufacturers of plastic products in the vicinity of the airport, enabling them to quickly access markets throughout southern Ontario, New York and Michigan.

Advanced Machine Manufacturing

The Province of Ontario is a leading producer and consumer of machinery of all types. Its broad manufacturing base focusing on automotive, electronics, appliances, plastics, chemicals, and food processing provides a strong foundation for machinery producers.

The provincial government in collaboration with the private sector have made many strategic investments to help ensure that Ontario's maintains its competitive edge of this important R&D-intensive sector.

The McMaster Manufacturing Research Institute (MMRI) was opened in May 2001 to provide McMaster University engineers with an opportunity to conduct industry-relevant research in the areas of polymer, automotive, aerospace and the tool die and mold industries. It is envisioned that 15,000 square foot facility, built at a cost of $12.5M will serve as a catalyst for spin-off opportunities and help stimulate new investment in the Region by R&D intensive manufacturing companies.

The depth of industrial markets, professional and technical skills and research capabilities in Hamilton provide a strong foundation for future investment in the areas of advanced manufacturing. McMaster University, for example, has consistently ranked among the top-ten engineering schools in North America according to the US-based *Gourman Report*. The university rates very strongly in a wide variety of engineering disciplines, including: mechanical, electrical, civil, chemical, computer and manufacturing.

The Province has identified the following machinery sub-sectors as growth opportunities:

- Automation
- Compressors and pumps
- Construction
- Mining machinery
- Material handling
- Fluid power machinery
- Food processing machinery
- Industrial and commercial fans and blowers
- Industrial molds
- Machine tools

- Packing machinery
- Paper-making machinery
- Plastics and rubber processing machinery
- Printing machinery
- Robots
- Sawmill and woodworking machinery

Machinery manufacturers and their customers have extremely tight relational requirements. Shipping parts and dispatching technicians on short notice to client sites are fundamental contractual commitments that must be upheld. The use of airfreight for system-critical parts is commonplace because of its potential to minimize production downtime in the event of equipment failure.

It is also important to note that equipment manufactures also rely upon global suppliers for use in both their own products as well as their assembly processes. Proximity to a full range of cargo facilities, including an airport, will help to ensure that production schedules for their products are maintained.

Manufacturers located close to air cargo hubs achieve significant advantages in terms of both cost and production flexibility. For example a company located north of Toronto (i.e. Vaughan, Richmond Hill, Markham, etc.) may need to ship product by 5:00PM to achieve 9:00AM delivery, whereas a company located close to the airport may ship until midnight to achieve the same delivery time.

7.5.4 Information & Communication Technology

The City of Hamilton's Economic Development Strategy formally acknowledges the Information & Communication Technology (ITC) cluster as a primary growth target.

Although weak market conditions for software companies and electronics and communication devices has lead to large-scale industry contraction and consolidation, the long-term growth prospects, according to most analysts, remains positive. The ITC sector is comprised of companies providing the following types of products and services:

- Telecom equipment manufactures
- Telecom service providers
- Computer equipment manufactures
- Microelectronic component suppliers, designers and developers
- Semi-conductor manufactures
- Software developers
  - Graphics and multi-media tools
  - Network applications and connectivity
  - Document management
  - Database management
  - Industry specific applications
- Digital media production
- IT Consulting
- Internet service providers

The Province of Ontario, in its marketing literature, is currently promoting three ITC clusters: Toronto, Waterloo and Ottawa. While these communities have firmly established themselves as leading international centres for product innovation, other communities around the province such as Hamilton have a unique opportunity to capitalize on internal strengths, such as its highly educated workforce.

McMaster University, for example, is one of the leading computer science and software engineering schools in North America. The university is also home to several research institutes that focus on ITC, including: the McMaster e-Commerce Research Centre (MERC) and the Management of Innovation and New Technology Research Centre (MINT).

Mohawk College of Applied Arts and Technology also supplies a healthy stream of qualified graduates in the areas of New Media, Network Security and e-Commerce.

Although much is attention is given the importance of vibrant and cultural-rich downtowns as a primary motivation behind investment decisions in this sector, the majority of new construction development, with the exception of e-commerce and new media, has actually taken place in suburban locations such as Kanata, Markham, Mississauga and Burnaby.

Given the growing availability of passenger service at HIA, ITC companies also have the added benefit to draw employees from other Canadian tech centres such as Ottawa, Vancouver, Calgary and Moncton.

The lands around the HIA provide tremendous opportunity to attract new ITC businesses to Hamilton and to allow the City establish a tangible physical presence in this sector.

7.5.5 Biomedical

The Ontario government has identified the biomedical industry as a primary investment target for the Province, and has ambitiously set out to ensure that it maintains its position as an international centre of excellence for biotechnology and medical research along side the states of California and Massachusetts.

The Province has identified 5 regional biomedical clusters in Ontario, three vibrant medical/academic centres - Toronto, London and Ottawa, and two up-and-coming centres - Kingston and Hamilton.

Formal recognition of the City of Hamilton in Provincial marketing materials as an *emerging* biomedical cluster provides a major boost to the local industry.

Several significant research facilities ensure that the City maintains an active role at the forefront of clinical research and also provides a well-educated and highly skilled workforce. Major research facilities in Hamilton include:

- McMaster University Faculty of Health Sciences
- Hamilton Health Sciences Corporation
- The Anti-microbial Research Centre (ARC)
- The McMaster Centre for Gene Therapy
- The McMaster Genomics Institute
- The Institute for Molecular Biology & Biotechnology
- Population Health Institute

Through its *Economic Development Strategy*, the City of Hamilton has formally acknowledged its intention to become a top-tier biomedical cluster. It is envisioned that the cluster will be made up of:

- Small research and manufacturing companies;
- Large pharmaceutical companies; and
- Research laboratories that conduct clinical trials.

Among one of the *deliverables* outlined in the City's Economic Development Strategy is the creation of an "Innovation Park" or "Discovery District" in the City dedicated to biomedical research and product commercialization.

There is currently an initiative to plan for the development of a biotech incubator, which would logically be located on the McMaster University Campus due to the proximity of research facilities. However, as initial tenants of the incubator move up the commercialization chain, there will be a need for new facilities off campus facilities. The airport area may represent a reasonable site.

The biomed industry, as with most other R&D-intensive industries, shows strong locational tendencies toward suburban green field locations. In most cases site selection decisions are driven by a number of different factors:

- At the *macro-level*, biomedical companies are heavily dependent upon sophisticated research networks and strong academic traditions to advance their products and to attract top-tier talent. Universities and research institutes therefore play a vital role in both the formation and growth of successful biomed companies.
- At the *micro level*, biomedical companies generally have very specific requirements when it comes to satisfying their operational needs. From a real estate perspective, R&D intensive companies have very demanding building standards that must be adhered to. By and large these standards are driven by health, safety and environmental considerations such as the need for:

  - Large floor plates
  - Ionized water (w/ high purity content)
  - Load bearing floor capacities in excess of 125 lbs/sf.
  - 15'+ ceilings
  - Specialty HVAC systems
  - Uninterrupted power supplies systems

In emerging biomedical locations such as Hamilton, the prevalence of vacant space specially designed for R&D activities (or those which can be easily retrofitted to accommodate such activities) are not typically in abundant supply compared to more established cluster areas, where there are active real estate markets for vacant R&D facilities. Therefore, identifying the best green field locations in Hamilton will become a key factor in Hamilton's ability to attract biomedical companies.

Toronto and Montreal are by far and away Canada's leading centres for biomedical research. In both cities, companies have shown a high preponderance of spatial concentration in business parks around their airports.

A review of three specialty airports in the US (Piedmont, Rickenbacker and Alliance) also revealed that biomedical companies are attracted to employment areas adjacent to the airport.

Discussions with one company in the Fort Worth area, PharmaChem, revealed that the airport is an integral part of its daily business operation. PharmaChem is a leading provider of drug testing kits for private companies, insurance investigators and state law enforcement agencies. The company service customers across the entire US and receives specimen samples back for testing purposes in their in-house lab. The company relies exclusively on overnight courier services (Fed Ex, Emery and US-Airborne) to ship and receive their products. According to a company official, the company is presently considering the potential to establish a new facility around the Memphis airport to be even closer to FedEx's primary shipping hub.

The biomedical industry is heavily reliant upon air shipments for moving a wide variety of materials, such as: drugs, blood, lab specimens and cultures, diagnostic equipment and test results and medical records. For these reasons we believe that lands around the Hamilton airport would provide a suitable location for R&D and distribution facilities for the biomedical industry.

Figure 7-3

Target Sectors – Locational and Infrastructure Requirements

Logistics	Aviation	Manufacturing	ITC	Biomedical
➢ Proximity to customer-base ➢ Integration and linkages with other warehouse facilities (internal and external) ➢ Access to major highway network ➢ Access to intermodal facilities (rail, ship, air) ➢ Level of competition in the marketplace ➢ Availability of real estate with 30 to 50 foot ceilings ➢ Proximity to the US market.	➢ Enrolment/Graduates in post-secondary aircraft-related training. ➢ Name/Frequency of airlines and cargo operators currently serving the airport. ➢ Number of Private aircraft stationed at airport ➢ Size of Airport Facility (acreage, available hangar space, developable area, ➢ Length of Runway ➢ Passenger and Cargo Volumes ➢ Landing Fee structure ➢ Hours of Operation ➢ Down Time (closure due to weather) ➢ Distance from major airports. ➢ MRO Wage Rates ➢ Competition	➢ Proximity to customers ➢ Availability of skilled labour ➢ Wage rate ➢ Government incentives ➢ Quality of Life ➢ Access to major highways ➢ Unionization Rates ➢ Unemployment Rates ➢ Cost of Land and Buildings ➢ Taxes ➢ Pro-business and entrepreneurial attitude of the municipality ➢ Availability of qualified engineers ➢ Opportunities for R&D partnerships ➢ Depth and diversity of manufacturing base ➢ Government sponsored skills - training programs ➢ Expansion Capacity ➢ Utility & Tax Rates	➢ Proximity to Universities and leading edge-research facilities ➢ Concentration of industry-related peer companies ➢ Access to capital sources and active investment community ➢ Access to qualified graduates ➢ Multi-tenant buildings (1-3 storeys)	➢ Proximity to Universities and leading edge-research facilities ➢ Concentration of industry-related peer companies ➢ Access to capital sources and active investment community ➢ Access to qualified graduates ➢ Flexible leasing structures ➢ Public sector commitment to promote the industry ➢ Incubator facilities ➢ Opportunities for shared equipment arrangements ➢ Multi-tenant buildings (1-3 storeys) ➢ Water quality (high purity) ➢ 125 + lbs/sq.ft. floor load capacity ➢ 14 – 15 foot ceiling heights ➢ Highly reliable power supply

Figure 7-4

Typical Site-Specific Requirements

	Logistics	Aviation	Manufacturing	ITC	Biomedical
Building Size (SF)	10,000 – 500,000	10,000 – 500,000	10,000 – 250,000	10,000 – 300,000	1,000 – 100,000
Building Types	Warehouse (Parcel Integrators and e-fulfillment) prestige office (freight forwarders and custom specialists)	Hangar (MRO), prestige industrial (mfg), corporate office (training centres)	Prestige industrial	Prestige industrial, corporate office, multi-tenant commercial office	Prestige industrial, multi-tenant commercial office
Lot Sizes					
Range	1 – 50 acres	1-50 acres	1-50 acres	1-20 acres	1-10 acres
Typical	6 – 8acres	2 – 6 acres	2 –4 acres	1 – 2 acres	1 – 2 acres
Air-side Access Requirement	Moderate to High	Low (aircraft parts) to High (maintenance)	Low	Low	Low
Highway Access Requirement	High	Low	High	Moderate	Moderate
Highway Exposure Requirement	Low	Low	Moderate	Moderate	Moderate
Water Servicing Requirements	Low	Low	High	Moderate	High
Electrical Servicing Requirements	Moderate	Moderate	Various	Moderate	Moderate

8.0 AN ACTION PLAN FOR HIA

8.1 Land Use Vision

The study area includes some 5,800 acres for potential future airport related uses. Although all of this land will not be required for uses directly related to the airport, it must be planned in a manner that supports long-term airport operations.

There are a number of strategic areas in the vicinity of the airport that must be given high priority as part of future planning for the lands around the airport. These are described below and summarized on Figure 8-1.

A. Lands Capable of Airside Access

Lands abutting the airport have a premium value, according to the representatives at the benchmarked airports. Those lands that can provide airside access, offer a unique advantage that cannot be duplicated elsewhere in the region. With limited opportunities at Pearson, they offer a development opportunity that could be strategic for the Province. TradePort's Master Plan identifies a number of parcels suitable for airside accessibility. These total approximately 350 to 400 acres, a small portion of which (i.e. 15%) are developed with existing airport related uses. Some of these lands, on the east side of the airport, are within the Airport Industrial-Business Park and are designated Airport Related General Industrial in the Secondary Plan for the area. The remaining lands are situated in Special Policy Areas 1 and 2. We would recommend that these lands be reserved for future airport uses, particularly those requiring airside access. We would anticipate that these lands would accommodate primarily logistics and aviation activities with larger parcel sizes (e.g. in the 6 to 8 acre range). There will, however, be some variation depending on the type and scale of the business operator.

B. Existing Airport Industrial Business Park

The existing business park comprises some 780 acres, including the L-shaped parcel north of the airport. Excluding the lands identified above with airside access, the remaining business park lands comprise approximately 600 acres. These lands are largely on the west side of the existing Highway 6 route. Within this area, Orlick Industries has purchased a 53-acre parcel for a future auto parts facility and other airport related uses. This development could help to spear head additional development in the area.

The business park is designated in the Official Plan and the Secondary Plan and is partially zoned for industrial and commercial uses. The fact that the site was zoned was a prime reason motivating Orlick's land acquisition in this area as opposed to another site in proximity to the airport. It is likely that, until additional lands are designated and zoned, the Business Park lands, particularly the sites currently zoned for industrial and commercial uses, will be perceived as less risky for potential developers and businesses seeking airport access.

The business park lands, however, have disadvantages that may make them less attractive for certain businesses. With the exception of the southern most business park lands, they do not have direct expressway access or exposure, which may be a deterrent for companies desiring a heightened corporate profile or more immediate accessibility. Property ownership is fragmented particularly along the Highway 6 and Twenty Road frontages, which means that consolidation will have to occur for some of these lands to be developed. This area could be suitable for manufacturing operations with land closer to the new Highway 6 extension suitable for warehousing and logistics operations. Parcel sizes away from the Highway 6 extension may be smaller (e.g. 2-4 acres), whereas larger lots would be expected towards the south.

C. Gateway Site at Airport Entrance

Lands at the quadrant of the new Highway 6 and the access road to Airport Road directly south of the Airport will be the principal gateway into the airport for passenger traffic. These lands should ultimately be developed for prestige industrial/airport uses that have design standards reflecting the economic importance of the airport. These lands could comprise between about 100 and 200 acres. The northern portion of these lands are situated within Special Policy Area 2.

D. Strategic Lands Near New Highway 6

Hamilton has virtually no vacant serviced employment lands available on a major highway. As our discussions with other airport authorities and companies within the benchmarked airport business parks suggest, highway accessibility was as much, if not more of a factor influencing location decisions than the airport. In general, the first wave of businesses comprised those with direct linkages to the airport (e.g. couriers, air cargo companies, e-fulfilment firms, distribution centres etc.). However, after the airports became established as major business centres, other companies, many of which had no direct requirement for air operations were attracted to the area. The superior highway access around airports is an important attraction for these firms.

Lands along the new Highway 6 alignment, extending from Garner Road to Glancaster Road between Fiddlers Green and Southcote Road, comprise approximately 1,000 to 2,000 acres.

As the principal corridor leading to the airport, these lands could provide a higher profile to businesses that would require visibility and a prestige business park setting. Higher density uses, such as offices and hotels should be concentrated around interchange locations.

This area also offers an opportunity to accommodate large land users, such as distribution centres, corporate campuses, etc. (e.g. uses requiring 6 to 8 acres and more). In addition to having direct access to the Highway 6

extension, the corridor also benefits from its current composition of relatively large land parcels that will facilitate land assembly.

8.2 Recommended Airport Related Land Priority Allocation

Figure 8-2 summarizes our recommended allocation of priority lands for airport related uses. These lands should be given first consideration for airport related development.

Figure 8-1
Proposed Airport Related Land Allocation

Location	Approximate Acreage [1]
Airside Access	350 - 400
Gateway Site at Airport Entrance	100 – 200
Strategic Lands Near New Highway 6	1,000 – 2,000
Existing Business Park[2]	600
Total	**2,050 – 3,200**

1) Acreages are intended to represent gross acreages and should be viewed as approximate estimates only. More detailed land calculations should be undertaken taking into consideration finalized area limits, the existence of woodlots and other environmental features, the Highway 6 right-of-way, and the Mid Peninsula Corridor alignment.
2) Excludes lands with airside access included in the above total.

The inventory outlined in Figure 8-1 provides the City with a sufficient land base to make an impact as a planned airport community, with sufficient variety in terms of locations and site sizes to meet the needs of firms within the target sectors. It reflects a vision of what could take place near the airport on surrounding lands. We would note, however, that this analysis has not addressed land use and servicing constraints that may impact the potential supply, as well as, Official Plan and Provincial Policy Statement requirements that may impact future land use in the area and the airport.

Based on the benchmarked airport communities, the extent of industrial land designated in conjunction with the airports ranges from about 2,000 acres at Piedmont to 9,000 acres at Rickenbacker and 10,000 at Alliance. Over the past 10 years, absorption at Alliance and Rickenbacker has averaged between 200 and 300 acres per year. Comparable data is not available for Piedmont. In order to maintain a 30 year supply, at this pace, Hamilton could require that as much as 9,000 acres be set aside for airport related employment lands.

This level of absorption is significantly greater than that experienced by most municipalities in the Golden Horseshoe over the past twenty years. Furthermore, it is questionable whether the rapid rate of growth experienced around the benchmark airports over the past 10 years will continue for another 10 to 20 years. Despite its strategic advantages, Hamilton is also not able to offer the same level of incentives as the U.S. jurisdictions, which may compromise its ability to keep the same pace of absorption as the US examples. Further analysis of the impact of US subsidies on absorption rates at the US airports would be required to determine if consistent yearly absorption of 200 to 300 acres over 30 years is realistic for HIA.

The Industrial Business Park Review will include a measure supply and demand assessment of Hamilton's industrial business park land needs. That study, together with this report, will provide a basis for determining how much land is ultimately required at the Airport.

8.3 Other Surrounding Lands in the Study Area

Of the balance of the 5,800 acres in the Study Area, a portion (approximately 500 acres) has been identified in TradePort's Master Plan for a potential future airport expansion including extension of the north-south runway and a reserve for a future terminal.

The future of the lands north of Dickenson Road (Official Plan Deferral #11) is being addressed through the City's Industrial Business Park Review Study and Growth Related Integrated Development Strategy (GRIDS). Other areas may continue as rural or could contain uses that may be identified at a later date that would be compatible with an international airport having 24/7 operations.

There are a wide variety of uses that would be compatible with the operation of a 24/7 international airport and that would enhance the overall attraction of the area for businesses. These other uses would locate near an airport but not land required for strategic airport related uses. For example, Circle T Ranch at AllianceTexas is a 2,500 acre master planned recreation community, including golf courses, a major retail centre an 800 acre corporate office centre, hotels, vacation properties and residences. There is also a trend to locate major tourism attractions, such as theme parks, convention centres, spa resorts, sports stadiums etc. in proximity to airports to take advantage of the access to non-local markets.

AllianceTexas also includes plans for a future "wired" residential community centred around a major recreation complex. Essentially the theory behind this is that it provides a nearby residential community to reduce commuting travel in a somewhat remote area. This is not the case in Hamilton, where the built up area is not a considerable distance from the airport. It is also important to recognize that the residential communities developed as part of alliance are a minimum of 6 kilometres from the airport. This distance is well beyond the limited of the HIA study area.

Caution should be used when planning lands around HIA to ensure that any uses allowed, particularly residential, will not threaten the ability of the airport to continue to expand its operations.

Figure 8-2
Recommended Airport Areas of Strategic Importance

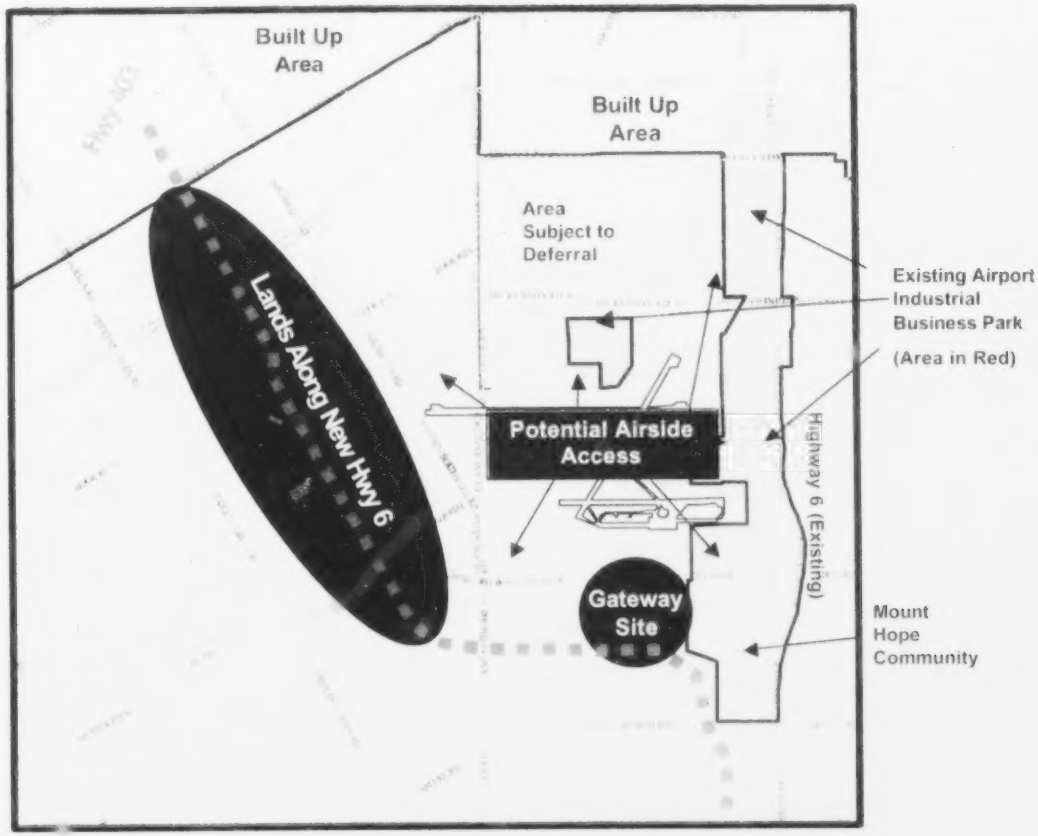
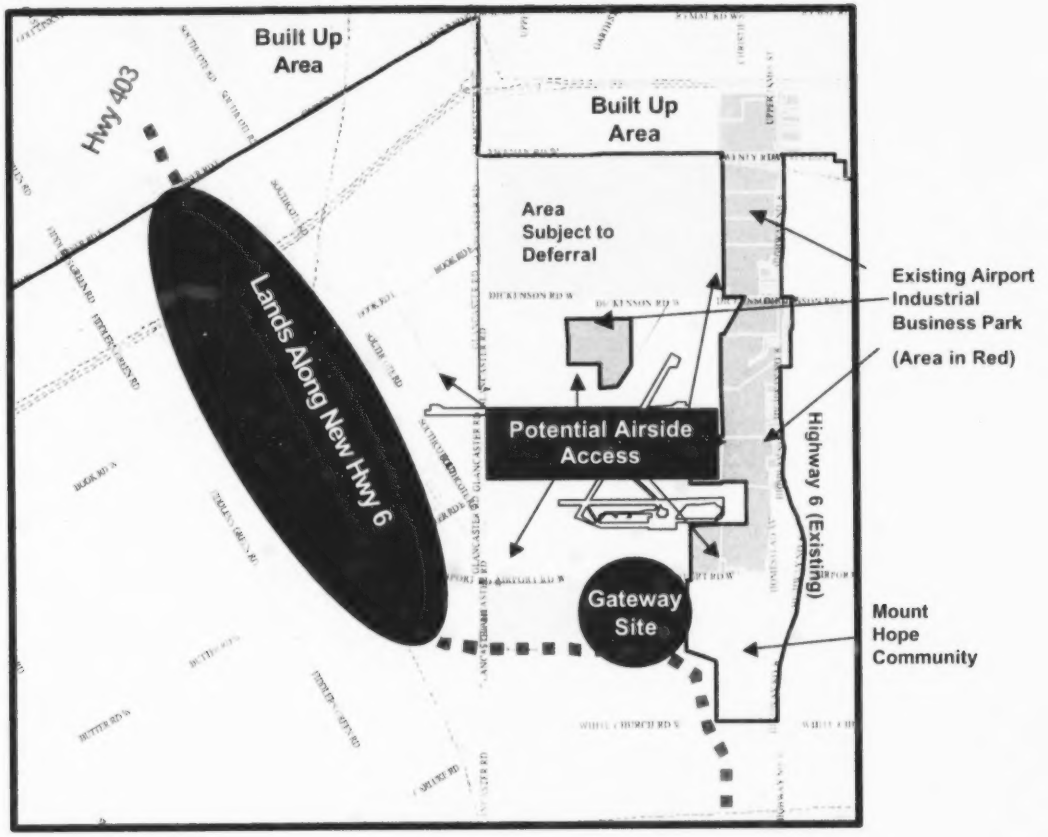


Figure 8-2
Recommended Airport Areas of Strategic Importance



8.4 Locational Opportunities for Target Industries at HIA

Logistics

For the most part, logistics firms will be looking for sites with excellent highway access. Certain freight forwarder and courier firms will require airside access, although the bulk of companies in this sector will require larger sites for warehousing and materials handling, with sufficient land to accommodate trucking activity. A direct connection to the airport is not necessary for most firms, some of which may have no requirement for air carriers. The ability to access rail and shipping may also be important to some firms, although for the majority of firms likely to be attracted to the airport vicinity, the ability to accommodate truck traffic will be of paramount concern.

Aviation Cluster

Firms involved in maintenance, repair and overhaul of (MRO) aircrafts will require airside access. Firms in the MRO sector tend to cluster with complementary activities to pool a full range of aircraft service facilities in one location. In this way, they benefit from cross servicing within the cluster. The local availability of training courses in aircraft repair, such as those offered through community colleges is also important to the MRO sector.

The manufacture of aircraft parts does not necessarily require a location in proximity to an airport, although the availability of land in a vibrant airport industrial area could be seen as beneficial to some companies. These firms may be suitable to the existing business park. It is also important to recognize that locational decisions made by aircraft parts manufacturers often involve significant subsidies to off set accommodations and labour costs.

Manufacturing Cluster

Of the manufacturing sub-sectors identified as being most appropriate for the airport, advanced machinery manufacturing is the one most likely to make regular use of airfreight services. This sub-sector would be most attracted to a location in proximity to an airport, due to the need to dispatch technicians and parts to client sites on short notice. Advanced machinery firms, however, would generally not require sites with airside access.

The other manufacturing sub-sectors – automotive parts and plastics have a much greater orientation to the highway system.

Information Technology and Bio-tech Clusters

These two clusters share many of the same locational patterns. Firms in these sectors are generally seeking a high quality campus setting. The attraction of these firms may be a longer-term proposition than the other sectors for several reasons:

- The technology industry, in general, is going through a restructuring period following the rapid growth experienced in the 1990's.

- A possible strategy for the bio-tech industry is to develop an incubator facility at McMaster University. The airport lands could represent an opportunity to attract second and third generation firms.

- These sectors have a high propensity to cluster, often around a large corporate entity. The initial development of technology clusters can be slow, prior to a rapid growth phase.

This, however, should not preclude earlier development of a biotech or IT cluster, if a major firm in either of these sectors were attracted to the airport lands. Regardless of when development of these sectors occurs, they are important targets for the City. Provision should therefore be made for a campus suitable to ITC and biotech firms.

8.5 Land Assembly

A significant success factor in the development of the benchmark airport communities was the assembly of lands under a co-operative venture between the municipalities and private developers. In the case of Alliance, the land was privately owned. The role of the municipality was to work with the developers to create the ultimate land use plan and zoning scheme. In the case of Piedmont Triad and Rickenbacker, much of the land was assembled by strong arms lengths agencies comprised of both public and private sector representation.

Because much of the land was controlled by a single entity, lands could be developed in a co-ordinated manner taking into consideration both short and long-range objectives as well as balancing the financial needs of the project and the economic development goals of the region.

Given the fragmentation of land holdings in the area around HIA and the fact that speculation is already beginning to occur, it may be difficult for a private entity to acquire the majority of lands.

The later approach, whereby an authority is created with the powers to acquire and develop the surrounding lands would also be a highly desirable alternative, providing that (a) It was provided with sufficient seed capital; and (b) the municipality was capable of using its powers of expropriation to assist in acquiring strategic parcels. This strategy tends to work best when the authority can control the bulk of land so that it is not competing directly with private landowners. Given the extent of land around HIA, it is likely that this approach would be difficult to implement.

The best alternative, therefore, would be for the municipality to develop a plan for the lands surrounding the airport through consultation with the landowners. This process has begun with the Industrial Business Park Review. In the beginning, the City should spearhead the planning and land assembly process. An authority could

be created once development has achieved a certain amount of momentum and developers have been identified who would have a long term stake in the area. The authority would have the power to acquire and develop strategic parcels or to form joint ventures with private companies. This would occur in the case of strategic projects, which the private sector, on its own, may not be interested in or capable of developing. Examples could be the acquisition of lands for a future technology park or the gateway site.

8.6 Planning and Infrastructure Priorities

We have not undertaken a detailed assessment of the servicing requirements for the airport lands, however the following comments provide commentary as to the priority for planning and servicing each of the proposed development areas.

In the US examples, Federal and State subsidies allowed much of the required infrastructure to be in place prior to development. This would be the ideal situation for HIA. Given the timeframe of development, however, only a portion of these lands needs to be serviced as a first phase.

Existing Airport and Business Park Lands

As we understand, the airport is near to development capacity and has reached its capacity in terms of natural gas service. Several tenants have expansion plans that cannot be met due to the lack of availability of natural gas. A significant water pressure concern also exists. The airport itself is without question the highest priority in terms of servicing. First, because of its economic importance to its primary markets within the Golden Horseshoe. Secondly, the airport represents infrastructure that will attract growth to the surrounding area and thirdly, because it demonstrates the commitment of the City and other stakeholders to a world-class airport and the vision for an aerotropolis. In terms of short-term servicing, the most immediate need would be the airport itself and lands adjacent to it within the business park.

The existing business park is not as well oriented to the future expressway system as the lands near the new Highway 6. It is however, currently designated and partially zoned for airport related uses. Once the new Highway 6 is open, there will likely be an increased demand for land in the vicinity of the airport. It may be more expeditious and cost-effective to upgrade and/or bring additional services to the existing business park to meet this demand as a first phase.

The industrial Park Review and pending Airport Area Servicing Strategy initiated by the City will address the requirements and feasibility of services in this area. The Industrial Business Park Review is assessing the viability of the Airport Business Park (among others) for industrial uses relative to servicing costs and market conditions. The study is determining the characteristics required for success available at the business park, including what infrastructure exists, and devising a strategy to bring the missing elements to the Park.

Potential Expansion Areas

Several of the areas identified as being of strategic importance to the Airport are currently Rural lands located outside of the Urban Area Boundary. Expansion of the Urban Area Boundary is subject to an Official Plan amendment and prescribed provincial and city policy requiring an evaluation of municipal-wide need, agricultural, environmental and social impacts, and cost of servicing. Additional study will be required to provide this evaluation. The Industrial Business Park Review and pending Airport Area Servicing Strategy will contribute to this analysis. These strategic areas include adjacent lands with potential for airside access located outside of the existing business park, the gateway site and lands along the new Highway 6.

There is very little vacant serviced industrial land available in Hamilton with expressway frontage. Our research indicated that the vast majority of businesses attracted to airport communities will have a very strong requirement for highway access. As a result, the new Highway 6 Extension will be an attractive business location that may include: prestige business campuses, large sites for distribution centres and other space extensive uses, office uses, and supporting business services and commercial uses, such as hotels. Interchange sites, particularly the gateway site should be allocated the most intensive uses with high design standards. Ideally, these lands should be serviced first, but for practical reasons it is be more expeditious and cost effective to extend services into a portion of the designated business park lands as a first phase.

8.7 Subdivision and Site Planning Must be Flexible but Provide Sufficient Direction to Developers

Based on our interviews with representatives from the airport business communities in the United States, there is somewhat of a diversity in the range of companies attracted to airports, particularly during the latter development waves, At this point, firms may be more attracted to the business activity cluster and resulting infrastructure growth than to the airport itself. During initial planning, officials did not anticipate many of the technological and other factors such as e-fulfilment and technology clusters that contributed heavily to the success of their airports as economic development generators. For this reason, some flexibility must be incorporated into the long term planning process to allow for new technologies, development formats and economic trends.

Within Alliance, although there was a range in building sizes, the typical parcel was in the 10 to 12 acre range, with a building foot print of about 200,000 to 250,000 square feet. Officials at Rickenbacker indicated that parcel sizes within their development tended to be somewhat smaller (i.e. in the 6 to 8 acre range, with structures of about 100,000 to 200,000 square feet). This may reflect the fact that Alliance tends to play a hub function for a wider region, and as a result, attracts larger warehouses and logistics operators. In addition to the typical parcel size requirement, is the potential for very

large land uses, such as the one million square foot FedEx sorting Hub at the Piedmont Triad and the 53 acre air trade centre at Alliance.

In the Hamilton and Canadian context, particularly with respect to the logistics and manufacturing clusters, it is expected that operations could be smaller than their U.S. counterparts, with typical lot sizes ranging from about 2 to 4 acres for manufacturing operations to 6-8 acres for logistics companies. At the same time, land should be available for much larger land users.

One means to facilitate this is through block plans of subdivision, whereby a road pattern is delineated in a manner that allows services to follow on the same alignment. Individual lots can be subdivided to respond to the needs of specific users. This approach would require certain municipal policies specifying minimal lot sizes and other site planning regulations, but provides for flexibility in accommodating large space users that could act to attract other business to the area.

8.8 The City Must Promptly Assert its Vision

There are two potentially significant threats to the realization of the City's vision for HIA. The first, which has been discussed in a number of places in this report, is the potential challenge that may come from persons seeking to develop the area around the airport for residential uses that may be incompatible with airport operations. For this reason, it is critical for the City to not only build wide spread community support, but also to formalize its vision through the planning process.

Equally as important is to ensure that the City's vision is strongly represented as part of the Federal Government and Greater Toronto Airports Authority (GTAA) investigation into the viability of a Pickering Airport site. As we understand, Transport Canada has been asked by the GTAA to determine the need for an airport that would act as a "regional reliever" facility for the Golden Horseshoe, which is a role that HIA is currently developing for itself.

The GTAA is already studying need and land use issues at the Pickering site. For this reason, it will be essential for the City to develop a strong business case for its vision of HIA, which addresses the following issues:

- Whether two "reliever" airports are required in the region, and if not, which is the most appropriate location for this function;
- Whether Hamilton's vision for an airport community is still viable if a Pickering airport is developed; and
- Whether air cargo/integrated courier hub operations should be provided in both Hamilton and Pickering and if not, which is the most appropriate site for these facilities.

These issues must be addressed for both internal planning purposes by the City of Hamilton and to ensure that studies conducted with respect to Pickering proceed in a manner that recognizes the broader regional economic implications of a Pickering Airport.

8.9 The City Should Spearhead the Initial Development of the Airport Lands

The City of Hamilton has already declared the development of HIA and surrounding lands its number one economic development priority. As the owner of HIA, it is imperative that the City plays a lead role in influencing the development of the surrounding lands. This is because the development of these lands will play a critical role in the success of the airport. For example, the development of incompatible residential uses may place restrictions on flight operations, thereby impacting the ability of the airport to service its customers and ultimately attract economic development to Hamilton. Conversely, a strong industrial base in the vicinity of the airport will support and solidify its function as an important part of Southern Ontario's transportation infrastructure. Similarly, the road and servicing network in the vicinity of HIA will similarly affects its success.

The City as the leader of the airport development initially should take on the following functions:

- The creation of a development strategy for the Study Area, with input from TradePort, the landowners and other stakeholders;
- Facilitators of the land assembly process;
- Where essential, to use its powers of expropriation to secure properties critical to the success of the airport and the development strategy;
- To market development around the airport;
- To provide local infrastructure as required, with guidelines from the Industrial Business Plan Review Study; and

To liase with the Province and Federal Government, where mutual interests exist

8.10 Creation of an Authority to Champion the Development of the Airport Area.

Once sufficient momentum has occurred, initial infrastructure is in place and development of the surrounding lands has commenced, we would recommend the formation of an authority comprised of representatives from the City, the Province, the Federal Government, TradePort, and private landowners with responsibility for:

- Advising on strategic and land use planning issues;
- Marketing the airport area;
- Facilitating business location to and expansion within the airport area;
- Acquiring lands strategic to the airport area to secure the continued compatibility of land uses with airport operations or to facilitate development by the private sector consistent with the airport development plan; and,
- Developing or joint venturing with the private sector to develop strategic projects that may not be undertaken by the private sector on its own.

The intent of the authority would not be to compete with the private development industry, but to assist private development and to undertake actions to ensure the implementation of the airport area plan.

Although not directly comparable, the closet example to such an authority, would be the City of Toronto Economic Development Corporation (TEDCO). The new mandate for this corporation is to acquire, development and market brownfields lands as employment generators. TEDCO is an arms length corporation with the City as its sole shareholder. Its board comprises city staff, politicians and appointed citizens.

8.11 The Role of TradePort

The primary role of TradePort will be to operate HIA, continue to plan and develop airport lands in co-ordination with the authority and the City and to ensure that the airport is able to operate in a manner that supports the airport area plan. It will be important for the airport to have early and regular input into the planning and development process. As a result, TradePort on behalf of HIA should be a commenting agency on development in the study area.

8.12 The Role of the Province

The primary role of the Province will be to incorporate HIA into its business development initiatives as a key element of Southern Ontario's regional economic infrastructure; to facilitate highway construction within the airport area; and to assist with appropriate funding through applicable programs to ensure the availability and timeliness of infrastructure development.

8.13 The Role of the Federal Government

The primary role of the Federal Government will be to market HIA through its business development and export initiatives and to assist airport infrastructure funding through applicable programs.

Appendix A

Summary of Municipal Economic Development Strategies Related to Airports

PRICEWATERHOUSECOOPERS

Appendix A: Summary of Municipal Economic Development Strategies Related to Airports

Municipality	Targeted Industry Sectors	Policy Considerations (Airport Related)	Other Issues
Hamilton	• Industrial Manufacturing • Agri-business • Aerotropolis • Health & Biotechnology • Information & Communications Technology • Film	**"Economic Development Strategy Report":**[1] • Identifies the development of an "Aerotropolis" as the number one priority • Recommends that energy and money needs to be directed to the development of airport and adjacent lands • Recognizes the presence of a cargo and passenger airport as impacting every one of the identified industry sectors • Identifies transportation infrastructure (road, rail, port and airport) seen as significant site location advantage but need to be improved • Recommends pursuing the feasibility of an "Innovation Park" for Health and Biotech Sector – Airport lands are a consideration	• Incomplete transportation links impacting opportunity • Lack of large parcels of available, serviced industrial land • High industrial tax rates relative to other GTA municipalities • Growth of other airports such as Pickering, Niagara / Buffalo, Montreal

[1] Economic Development Strategy Report: Hamilton's Clusters of Innovation. Final Report, May 2002

Municipality	Targeted Industry Sectors	Policy Considerations (Airport Related)	Other Issues
Burlington	• Financial Services • Software Development • Metal Processing / Steel Fabrication • Automation for Manufacturing / Distribution	*"Shaping a High Performance Economy for Burlington"*[2]*:* • Encourages land developers to consider more speculative development in an effort to increase the inventory of developable land • Encourages planning policies that preserve existing and new employment areas • Recommends the development of incentive policies for the conversion of obsolete development projects to provide new or incubator space for emerging businesses • Identifies the opportunity to enhance domestic and international services from Hamilton International Airport • Recognizes the presence of a cargo and passenger airport n as impacting all industry sectors particularly computer software development • Actively marketing Burlington	• Lack of available, serviced land and buildings • Higher valued companies are looking more closely at issues like proximity / access to airports • Proximity to Hamilton and Pearson airports seen as critical location factor • Highway access to the US is a major competitive asset • See themselves as competing directly with Brantford / Hamilton / Ancaster • Met with Tradeport in the recently to encourage completion of an economic impact analysis that looks at the importance of the airport in the region • Believes that municipality and Airport Authority have an isolated understanding of the relative importance of the airport • Need an effective strategy for the development of the airport - make this an issue for other levels of government in the context of growth in the GTA – Smart Growth panels • Pressure on existing infrastructure in the GTA / Golden Horseshoe and

[2] Shaping a High Performance Economy for Burlington. Final Report, February 2001

Municipality	Targeted Industry Sectors	Policy Considerations (Airport Related)	Other Issues
	• Life Sciences / Health Care • Media / Entertainment • Head Offices / Regional Offices / Back Offices of Manufacturing and Business Service Industries • Tourism	commercial, tourism, manufacturing and institutional • Promotes access to travel gateways - access and proximity to Hamilton and Pearson airports • Promotional materials developed to support automotive, tourism, digital media, plastics and machine tool industries	the top factors Halton business executives consider when making an investment decision • Oakville's key competitive clusters rely on the Hamilton Airport to move people and goods • Airport increasingly seen as a magnet for attracting business to Halton Region • Airport is also viewed as a boost to tourism
CTT (Cambridge, Kitchener, Waterloo)	• Advanced Manufacturing • Automotive • Machining and Information Technology	***"CTT 3 Year Strategic Plan"[4]:*** • Target markets include Greater Toronto, Mid West Corridor (Chicago, Detroit, Ann Arbour, Minneapolis, Dallas, Houston, Austin • Targeted geographic areas selected on basis of industrial concentration, and linkages with region etc.	
Brantford	• Call Centres • Auto Parts • Warehousing / Distribution • Machining / Metal Working	**"Brantford Economic Development Action Plan"[5]** • Opportunities affiliated with housing industry, agri-business, airport & downtown will be	• Looking to joint market brownfield sites with Hamilton's Economic Development Department • Looking to develop a master plan and business plan for the Brantford Airport – state that they are not interested in

[4] Canada's Technology Triangle, 3-Year Strategic Plan. 2002-2004
[5] Brantford Economic Development Board / Department Action Plan 2001 & Beyond. January 2001

Municipality	Targeted Industry Sectors	Policy Considerations (Airport Related)	Other Issues
	Metal Working • Food Processing • Plastics • Film Industry	explored • Instituted an Airport Task Force that includes customer service survey of airport users – focused on the growth potential of Brantford airport • Actively marketing access to three international airports in particular the lower cost option of Hamilton and Buffalo • Pursuing cooperative marketing efforts with the Airport Commission	completing with Hamilton but rather will be looking to the type of activities that Hamilton is not likely to be involved in – handling and servicing of corporate jets
Niagara Region	• Tourism • Advanced Technologies • Manufacturing • Agri-business • Call Centres	*Niagara Economic & Tourism Corporation 2001 Annual Report:* • Tourism focus – targeted tourism sites, golf courses, viticulture, wineries • Advanced Manufacturing focus - • Identify and create an inventory of potential investment ready brownfield development sites as part of the Region's Smart Growth initiatives • Supports the construction of mid-peninsula corridor	• Formed the Niagara Aerospace Partnership for Learning in an effort to attract, develop and retain quality staff in the aerospace sector • In responding to investment enquiries staff routinely refer to all of the area airports from the small municipal airports to the larger airports of Hamilton Buffalo and Pearson • Senior staff feel strongly that if infrastructure is in place there would more likely be a comparison made with the access and convenience of Buffalo rather than Pearson – at least as it relates to Niagara/Hamilton/ Halton businesses and corporate executives • Because of the nature of product

Municipality	Targeted Industry Sectors	Policy Considerations (Airport Related)	Other Issues
			moving in and out of Niagara predominance is given first to the fast movement of truck and rail shipments – after that discussion will focus on air-related traffic • See considerable opportunity to establish and operate charters from US and Europe in the Niagara/Hamilton/Toronto area

Appendix B

List of Persons Interviewed

Appendix B

List of Persons Interviewed

A. Stake Holders and Local Land Owners

Company	Contact Name
Orlick Industries	David Braley, President
TradePort International	Tony Battaglia, President
Federal Express, Hamilton	Jerry O'Flynn, Manager, Ramp Operations
Purolator Canada	Andrew Weidner, District Manager
Smith Industries	Ken Hunter, General Manager
UPS Canada	Tom Bontje, Manager

B. Economic Development Corporations

Company	Contact Name
Brantford Economic Development & Tourism Department	John Frabotta, Director
Burlington Economic Development Corporation	Don Baxter, Executive Director
Cambridge Economic Development Department	Leah Rozic
Canada's Technology Triangle (CTT)	Randy Ellis, Chief Executive Officer
Niagara Economic & Tourism Corporation	Alan Teichroeb, Manager, Business Development
Oakville Economic Development Alliance (OEDA)	Elaine Scrivener – Marketing and Partnership Development Officer

C. Airport Authorities

Company	Contact Name
Alliance Airport	Steven Aldrich, Vice President
Brantford Airport	Hoda Kayal, Manager
GTAA	Guy Maynard, Cargo Manager
Hillwood	Brenda Lacey, Hillwood Customer Relations Manager
Ottawa International Airport	Karen Hakib, Airport Executive Office
Piedmont International Airport	Dan Lynch, Senior Vice President
Piedmont Triad International Airport	Stephanie Freeman, Marketing

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GTAA	Guy Maynard, Cargo Manager
Hillwood	Brenda Lacey, Hillwood Customer Relations Manager
Ottawa International Airport	Karen Hakib, Airport Executive Office
Piedmont International Airport	Dan Lynch, Senior Vice President
Piedmont Triad International Airport	Stephanie Freeman, Marketing

Company	Contact Name
Piedmont Triad International Airport	Mickey Elmore, Director of Development
Rickenbacker Airport	James Mako, Planning Manager
Rickenbacker Port Authority	James Mako, Planning Coordinator
Trade Port International Corporation	Adrian Pocobene, Manager, Marketing, Cargo, & Supply Chain Services
Trade Port International Corporation	Mirella Lio, Marketing
Buffalo International Airport	Linda Francis, Assistant to the Airport Manager
London Airport	Mike Seabrook, Manager
Niagara Falls Airport	Conrad Hatch, Manager

D. Companies in Proximity to Airports

Company	Contact Name
Dow Corning Corporation, Greensboro NC	Dwayne Goslin, Facility Services & Real Estate
Forward Greensboro	Heather Bischoff, Manager
Lucent Technologies, Greensboro NC	Tracy Siegmund
NAPA Autoparts, Greensboro NC	Harvey Kovell, Operation Manager
National Pipe & Plastics, Colfax NC	Bernie Morgan, Projects Manager
Federal Express, U.S.	Scott Pflueger, Vice President, North American Facilities
UPS, U.S.	U.S. National Facilities
American Express, Alliance	Harry Warren, Call Centre Facilities Manager
Bridgestone/Firestone, Toronto	Carol Bonazze, Vice President, Facilities
Emery Airfreight, Toronto	Don Hogan, General Manager
Burlington Northern, Dallas	Fred (Fritz) Draper, Senior Supply Management
Spiegal/Eddie Bauer, Rickenbacker	Jerry Pieniazek, Director, Logistics
Eagle Logistics, Rickenbacker	Diane Beaton, Manager, Facilities Manager
Gulfstream Aerospace – Dallas TX	Judy Crease, Manager
Nokia – Dallas TX	Dan Powell, Facilities Manager
PharmaChem – Dallas TX	Niel Fortner, Manager
Sprint – Dallas TX	May Croff, Facility Manager

E. Other

Company	Contact Name
Balir Blanchard Stapleton, Hamilton	Gary Stapleton, Broker
Ontario Aerospace Council – Waterloo ON	Rod Jones, Executive Director
Ontario Investment Services	Luc Gartner, Senior Advisor
PricewaterhouseCoopers	Ilya Bahar, Supply Chain Management Specialist
PricewaterhouseCoopers, Financial Advisory Services – Houston TX	Joni Ffrench, Airport Specialist

F. Steering Committee

Company	Contact Name
City of Hamilton, Economic Development Department	Sylvia Renshaw, Business Development Consultant
City of Hamilton, Planning and Development Department	Alan Waterfield, Planner
City of Hamilton, Infrastructure and Enterprise	Robert Shamess, Acting Manager, Strategic Planning
Province of Ontario, Ministry of Enterprise, Opportunity and Innovation	Chris Burke, Manager, Urban Economic Development Branch
TradePort International	Ken Mitchell, Director, Public and Government Relations